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THE CONSERVATIVE ATTITUDE IN THE TREATMENT OF ACUTE PYOGENIC INFECTIONS

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The conservative attitude in the early treatment of acute surgical infections such as carbuncles, cellulitis, lymphangitis, and infections of the hand and face is not well enough understood or appreciated. Premature and unnecessary incisions are far too often made; adjuvant non-operative treatment is too often neglected. Conditions which frequently go on to suppuration and, in a small proportion of cases, to very grave complications, produce a perplexity in the practitioner's mind as to what early treatment should be instituted. For many years cases of acute surgical infection admitted to the London Hospital have, so far as possible, been segregated in two special wards comprising forty-four beds, and it is the purpose here to review the procedures which have been evolved in these wards with their large amount of material and to demonstrate the extent to which conservatism has been carried.

The virulence of the organism and the resistance of the patient are the two fundamental factors that determine the outcome of such infections. Little can be done to influence the former; the latter can easily be undermined by ill-timed operations. It is not proposed to discuss the question of serum or vaccine therapy, both of which, at the present time, can only be regarded as possible adjuvants to, and of much less importance than, clinical treatment. By the conservative attitude is meant the avoidance of incisions altogether, or their delay until a localized collection or collections of pus have formed. Most surgeons and practitioners have at one time or another made an incision in an inflamed area without revealing pus. A little disappointed, the operator nevertheless expresses the opinion that the incision will do good. It is not true. The local defensive processes have been impaired; the patient has been subjected to a needless and fruitless operation; a longer illness or convalescence has been entailed; and, most important of all, new channels for the infection to follow have been opened up, this in grave cases and in certain dangerous situations turning the scale against recovery at all.

Reasons for Incision

Premature and unnecessary incisions are made for several reasons. One is the perhaps not unnatural feeling that tissues made tense by inflammation, without necessarily pus-formation, ought to be incised in the hope of relieving pain and allowing an exit for the organisms and inflammatory exudates. But the pain is not relieved; the swelling is essentially a curative reaction, and far from the infection being allowed an exit it is only permitted a further spread afield. Another reason for over-early incision is that the patient or his friends, calling insistently for something to be done at the height of his malaise, which is usually before pus is present, persuade the doctor to it. Still another reason is the mistaken diagnosis of localized pus; while deeply seated pus is sometimes difficult to detect, there is not so much excuse for mistake in superficial collections. It is doubtful whether any physical sign of equal importance is so casually sought for as fluctuation. One observer's fluctuation indeed is often another observer's mystification.

Carbuncles, cellulitis, and infections of the hand and of the face provide a very great proportion of what one may call the septic infections. All, moreover, are liable to severe complications. A survey of these in regard to early conservative treatment and its outcome in fairly large series of hospital cases will now be made. A three-year period has been chosen, and the wards for the greater part of that time have been under the writer's supervision. It may be said now that in the treatment of all the infections to be dealt with much faith is placed in the copious administration of fluids and of potassium citrate, the latter being given as a routine procedure in doses depending on the severity of the toxaemia, up to as much as 60 grains two-hourly.

Carbuncles

No carbuncle has been incised, excised, or scraped in these special wards during the past three years. The total number of carbuncles treated is seventy-eight. This abstention from operation is probably carrying conservatism further than usually practised elsewhere. Except for carbuncles of the face and lips, so dangerous because of the possibility of intracranial extension, the most prevalent treatment elsewhere is excision or incisions, crucial or multiple. The non-operative treatment of carbuncles in other situations has with us evolved from the excellent results obtained in facial cases by means of hot hypertonic salt compresses. There are two distinct advantages. The first is the avoidance of an anaesthetic and operation; this, laudable in itself, is of additional importance since many carbuncular patients, whether diabetic or not, are in a debilitated state. The second advantage is a cosmetic one: incisions are the main cause of ugly scars.

These two advantages are stressed rather than any attempt made to deduce a decrease in mortality rate, since in not a few patients the carbuncle is a complication to some other affection, and the mortality rate in any series must depend greatly upon the proportion of such complicated cases. In the series of seventy-eight pre-

sented (and it must be remembered that the cases were all deemed sufficiently severe for the patients to be admitted as in-patients) there were five deaths. Three of these five were complicated by acute leukaemia, uraemia, and severe diabetes respectively; a fourth patient died two hours after admission in a moribund state. In these cases the carbuncle was situated on the neck or back. The fifth death occurred in a patient with carbuncle of the upper lip, who developed cavernous sinus thrombosis and pyaemia. Such facial cases will be discussed separately later. Regarding the others, it will at least be conceded that the mortality rate is no higher than occurs with operative treatment. Series treated operatively in these wards in the past compare unfavourably, but it is not proposed to go into this in detail since it would be impossible to contrast even approximately similar series.

It may be asked, Do not incisions make the patient's complaint more tolerable? Rest in bed and the administration of such sedatives as aspirin and pyramidon will effect this state for the few days necessary before separation of the slough. It is erroneous to assume that much pus will be liberated by incision; there is little pus to liberate. At the same time, it may be conceded that incisions in carbuncles, because of the great surrounding induration, are unlikely to be dangerous by causing spread of infection—that is, if the incisions do not extend beyond the carbuncle. Yet there are some who deny much value to incisions unless they are carried out into surrounding healthy tissue.

LOCAL TREATMENT ADOPTED

The actual local application employed is a fomentation or compress made of fluffed-up white gauze, which has been well wrung out of a hot solution of hypertonic salt—one ounce to the pint—overlaid by a flat piece of white lint similarly treated and further overlaid by jaconet or oiled silk. The fluffed-up gauze collects the pus and detritus much better than a flat dressing. (Modifications for facial cases will be described subsequently.) The salt fomentations are renewed two-hourly during the day and four-hourly at night. In a few days the slough comes away entirely, leaving a granulating area which in another few days presents a healthy colour. Dry, fluffed gauze dressings are now substituted, and the epithelium creeps in to cover entirely an area which in many cases would seem to need skin grafting. There has been no need to skin-graft any of the cases in the series, although in some the area covered almost the entire back of the neck.

The preference for strong salt solution over the magnesium sulphate and glycerin paste alternative is in virtue of the greater heat which can be applied with the former. While the carbuncle, with its large slough, gives the more striking results, the method is equally applicable to boils.

Infections of the Face, Nose, and Lips

It should be unnecessary to have to indicate the dangers of infections of the face, nose, and lips, dangers which lead to some of the saddest tragedies in surgery, but the situation is still imperfectly realized. Often originating in an apparently trivial focus, the infection spreads to the cavernous sinus by the angular vein or the pterygoid plexus, with an almost invariably fatal result. While, doubtless, a virulent infection will find its way thereto whatever the treatment, it cannot be gainsaid that the process is frequently aided by incisions or squeezing of the focus. Infections of the upper lip and the side of the nose are particularly liable to the complication. No incision should ever be made on the face for an inflammatory condition, whether it be boil, carbuncle, septic spot, or cellulitis. Should an abscess form it must be allowed to rupture spontaneously. Patients not under hospital supervision must be deliberately warned against attempts at expression of pus by squeezing.

During the three years 1932–4 there have been 112 cases of infections of the face admitted to these wards, among which there have occurred four deaths. One of the patients who died (mentioned above) had a carbuncle of the lower lip which spread to the upper lip and terminated in thrombosis of the cavernous sinus; a second, a diabetic, was admitted with a furuncle of the nares, purulent frontal sinusitis, septicaemia, and cavernous sinus thrombosis, and died the same day. The third and fourth both died of cavernous sinus thrombosis and septicaemia, having had incisions made elsewhere into a furuncle of the side of the nose (no pus obtained on two occasions), and a small furuncle of the upper lip respectively. Whether complications in the second case were aided by squeezing is not known, but it is evident that only one death occurred where scope could be given to conservative treatment, and of the 112 cases in the series the infection, apart from any concomitant cellulitis, was in rather more than a third of the total number situated in the nares, the side of the nose, or the upper lip, the most dangerous sites of all.

TREATMENT ADOPTED

The treatment adopted is in the main similar to that described for carbuncle. It is, however, not very practicable to adapt compresses to the lips or the interior of the nares. Patients with lesions situated there can have similar therapy by immersion of the area in hot salt solution, the patient bending forward over a wide-mouthed jug of solution placed in a basin of hot water to maintain temperature and to catch the overflow, or, in the case of the nares, by application to the part by the patient himself of a large piece of cotton-wool soaked repeatedly in the solution from a basin in front of him. This bathing is performed for a quarter of an hour at two- or three-hourly intervals. During the intervals a compress is applied as near as is practicable. Where the infection is on the lips, the salt solution is made weaker, about half an ounce to the pint. The cosmetic result after conservative treatment of carbuncles, however large, on the face is always excellent.

Cellulitis

Conservative treatment has certainly been more generally appreciated and adopted in cellulitis than in the other acute infections. None the less, mention of the practice of multiple incisions before suppuration has occurred has not altogether disappeared from the student's textbooks. It seems extraordinary that the practice prevailed so long. Admittedly the patient usually recovered, in spite, rather than because, of the treatment, but even if he did get well without complication the incisions took time to heal, and the limb was disfigured with unnecessary scars. Present-day treatment takes the form of the application of large fomentations to the part, and abstention from incisions unless a localized abscess or abscesses arise or—and this is rare—diffuse unlocalized suppuration supervenes. In more than half of the cases no suppuration or other complication occurs. Such resolution is aided greatly in the case of the limbs by elevation. The number of cases which go on to grave complications is few, but recollection of such a case tends to precipitate ill-timed incisions where the general condition is disturbing.

Although cellulitis and lymphangitis fairly frequently coexist, what might be called cases of pure lymphangitis have been omitted from the series of 145 cases observed in these wards over a three-year period. The series

comprises forty-eight cases of cellulitis in the upper and fifty-seven in the lower extremity, twenty-seven of the face and thirteen situated elsewhere. Cellulitis of the face has already been mentioned. Of cases occurring in the extremities, 105 in all, fifty-five resolved without complication, forty-three had the minor complication of localized abscess or abscesses, while seven had the major complication of diffuse suppuration or/and septicaemia. It is of interest that whereas the odds on resolution without complication, minor or major, is two to one in the lower limb, it is two to one against in the upper. This seems connected with the fact that cellulitis originating in or reaching to the loose cellular tissue in the region of the elbow is almost invariably followed by suppuration. The only fatalities in the series of 105 limb cases thus treated conservatively were three associated with fulminating septicaemia ; all three were cases of cellulitis of the upper limb. The number of patients who developed grave complications but recovered is four ; one recovered from septicaemia, two from diffuse suppuration which entailed a series of incisions, and one from suppurative adenitis with much toxaemia.

The series refers to cellulitis in the more common use of the term—that is, a condition superficial or at least starting superficially—and not to forms of cellulitis occurring in deep fascial planes from original deep foci, penetrating wounds, or operations. The chief situation of the cases occurring other than on the extremities or face in this series is in the neck, and this condition tends to present great difficulties because of the depth of spread and the effects of pressure. By reason of these two factors incision here has occasionally to be made without certainty of the presence of localized pus or of its accurate localization. If incision be deferred, however, as long as is reasonable, localized pus is usually encountered ; such incision was needed in seven out of nine cases, and there were no deaths. Premature exploration incurs a grave risk of spread of the infection to the mediastinum.

Infections of the Hand

What of the conservative attitude in probably the most difficult of all surgical infections, those of the hand? Here correct early treatment is imperative if the incidence of severe complications, local or systemic, is to be kept at a minimum. The brilliant researches of Kanavel have revealed the potential spaces and compartments of the hand so that the tracks of spreading infections can be followed with accuracy and suitable incisions planned. Such anatomically complicated cases arise commonly from small original foci, and although the spread depends largely on the balance of virulence and resistance there is no doubt that local diffusion or systemic involvement can be aided by unsuitable early treatment.

THREE COMMON FAULTS IN EARLY TREATMENT

In the wards referred to there are annually some sixty patients with hand and finger infections, and the care of these is closely associated with an out-patient clinic for less severe cases. There would appear, from our experience, to be three common and important faults in early treatment. The first is the use of incisions when pus is not present ; the second is inadequacy in the size of the incision when pus is present ; and the third the injudicious prolonged use of hot, moist dressings.

To dismiss the last first. A hand sodden and swollen by an endless succession of wet boric fomentations not only presents a baffling problem in diagnosis but has had its tissues so devitalized that diffuse spread of infection is inevitable. Such ultra-conservatism is not laudable, but let it be said that this condition is as frequently as not found in combination with incisions which have failed to reveal pus. Nor will anyone with experience doubt the second contention that incisions to evacuate pus are often much too small. Minute niggling cuts, blocked by a so-called drain, are of little use in preventing spread.

What of the early treatment before pus is present? Although surgeons of experience in septic work are in the main agreed upon an early conservative attitude in most acute infections, there is a distinct divergence on the part of some when infections of the hand are discussed. It seems to me that such have let the occasional tragic case weigh too heavily upon their minds. There will always be virulent infections, and too often the surgeon will not have the strength to stick to his principles, in order that it can be said that everything possible was done for the patient. Everything possible, but everything wise?

The immediate treatment of a prick is of peculiar interest to the surgeon. A not uncommon injunction is never to squeeze the digit ; some advocate paring off the surface epithelium around so as to remove organisms left in the cuticle as the point passed through ; even immediate excision of the track has been advocated. The last may be ideal, yet how many surgeons would subject themselves to it? Organisms may get held up in the cuticle of the horny-handed, but it is doubtful if this is so likely to occur in the hands of such as nurses and doctors. As regards the embargo on squeezing, it seems surely quite rational to hold the finger under the hot tap and compress its base in order to encourage bleeding and the possible immediate washing out of the organisms, not to speak of bringing to the area a greater supply of blood, with its normal bactericidal properties.

TREATMENT IN THE ABSENCE OF PUS

But it is when the prick area or some similar lesion becomes inflamed and there is toxaemia, high temperature, maybe a rigor, and streaks of lymphangitis or a spreading cellulitis, that differences of opinion are most important. If there is localized pus at the focus an incision appeals to everyone. Some assert, however, that the focus should be incised even if the pus has not yet formed. Charts are produced to show how the temperature subsides after incision, with a caption that the lymphangitis did likewise. It is not an uncommon thing to see such charts, illustrating some particular therapy or other, with an arrow indicating an incision or an injection of some serum or medicament, and a consequent rapid fall in temperature. The weakness of these demonstrations is that a sudden drop in temperature and restoration of well-being is so very common a phenomenon in lymphangitis treated conservatively apart from special therapy. This occurs in approximately the first seventy-two hours, the period in which the special therapy will usually be found to have been given. What, however, seems the most striking argument against incision of the focus in the absence of pus is that the incision of a similar focus unaccompanied by lymphangitis is often immediately succeeded by lymphangitis. If such can happen where lymphangitis was not present, what additional harm may not be done where it is already present? The rational treatment, however severe the case becomes, is surely the conservative one, the application of heat by large fomentations to the entire limb and deferment of incision until pus is present. Rest and copious fluids complete the treatment, although antiserum will probably be given by many. The more satisfactory treatment of virulent cases rests surely in the future progress of serum therapy.

The danger in conservative early treatment in hand infections lies in its overdoing. An account of the various entities is out of place here, but from their well-known complexity it is obvious that a keen look out must be maintained so that suppurative processes are

detected early, dealt with, and not allowed to spread insidiously. Recognition of these will be blinded by the use of prolonged wet dressings or too frequent salt baths. A well-wrung-out fomentation, whether salt or boric, will supply the necessary heat without the unnecessary soddenness.

In a three-year series comprising 176 cases of hand infections in these wards there were four deaths. One was in a man of 71 who developed a severe spreading cellulitis after an abrasion of the back of the hand, and died of septicaemia thirty hours after admission. A second patient, suffering from a thenar space abscess, developed a cellulitis of the limb and septicaemia. Both these are included in the cellulitis series above. A third died with lymphangitis and septicaemia secondary to a subcutaneous whitlow of the ring finger, while a fourth died of septicaemia unassociated with lymphangitis, following a haemolytic streptococcal abscess in a lumbrical space. A mortality rate of 2.2 per cent. is certainly not unduly high for patients with hand infections severe enough to warrant admission to the hospital.

Two Other Surgical Infections

Of the other surgical infections two desire brief especial mention, as they are so commonly explored far too early. One is puerperal breast infection. An over-early incision here very frequently entails further incisions, whereas a holding back until the various adjacent foci of suppuration have coalesced into one large abscess usually allows of one incision being sufficient. This is a waiting procedure beyond the knowledge that pus is present, but there is no danger and little discomfort by delay. When the abscess is deep and slow in moving superficially it may be difficult to know when to incise. A helpful sign is the palpation of a little break in the covering fascia of the breast into which the tip of a finger can be dipped. This, which is usually not far from the nipple, is the early stage of a collar-stud abscess, and exploration at this point will reveal a well-circumscribed solitary abscess.

The second instance is the external inflammatory swelling which precedes the formation of an alveolar abscess. Here external incision can sometimes be avoided altogether by internal drainage achieved by removal of the tooth. Over-early external incision frequently fails to reveal pus, and too vigorous exploration may set up a deep cellulitis with grave consequences.

It would be difficult to prove, as regards mortality rates, that such early conservative procedures as have been advocated are preferable to more active measures. The factors of virulence and resistance cannot be estimated so that parallel series can be compared. The object here has been rather to show how few complications occur in large series of cases deemed sufficiently severe to be admitted to hospital, and how frequently intervention has been unnecessary. Conservatism is, of course, no new fashion; rather is it a reversion to the old. Lessening of the risks of mixed infections after the introduction of antisepsis and asepsis possibly emboldened the free use of the knife. But reasoning on pathological grounds and clinical impressions are both in favour of less interfering methods. There is certainly a danger in being ultra-conservative, and anyone who regards the attitude as merely surgical inactivity does injustice to surgery in regarding its only activity an operative one. A careful watch has to be maintained so that intervention, if needed, occurs at the optimum time. The old dictum, "Where there is pus, let it out!" has become a commonplace. At the present time a more valuable injunction, despite its Irish flavour, might well be: Where there isn't pus, don't let it out!

CONGENITAL HEART DISEASE*

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I.—THE ACYANOTIC CASE

Congenital heart disease is defined as that condition in which, through arrest of development or disease occurring in early intrauterine life, alterations occur in the anatomical structure of the heart or great vessels. The subject is of great interest and of more than academic importance. A common conception of congenital heart disease is that of a very cyanosed infant with clubbed fingers, or of intense thrills and murmurs, the meaning of which cannot be determined except in so far that they indicate that the child will die young or be completely incapacitated. Yet an accurate anatomical diagnosis may lead one to state with confidence in certain cases not only that the child has a reasonable expectation of life, but that there need be a minimum of interference during the school age as regards exercise or games.

No attempt will be made here to deal exhaustively with so great a subject. It is intended to confine our remarks to a series of cases, numbering over 200, which have been the subject of observation and investigation over a period of some years.

One of the chief difficulties met with at the outset is a suitable clinical classification of the various cardiac defects. Early workers attempted classifications based on the aetiology, whether developmental or inflammatory. Bamberger[1] first stressed the important differentiation of the cyanotic and non-cyanotic groups. Abbott and Dawson[2] amplified this in their clinical classification. A statistical analysis of 850 cases from the literature by Abbott[3] in 1927 has more recently been brought up to 1,000. Abbott's classification is:

(A) Cases of no clinical significance, such as true mirror image dextrocardia.

(B) Cases of clinical significance.

1.—Non-cyanotic group: (*a*) cases in which no abnormal communication exists between the right and left circulation; and (*b*) cases in which an arterio-venous shunt is present, where normally the flow is from left to right, but where, as a transient or terminal event, reversal of flow may occur.

2.—Cyanotic group: In this group there is a permanent venous-arterial shunt from right to left.

Development of the Heart

A few general remarks will suffice to cover the development of the heart. The septa are closed by the end of the seventh week, so that developmental abnormalities must occur at an early date and cannot be assigned, as they sometimes are, to trauma at a later date of pregnancy. At an early or later period an endocarditis may involve the valve cusps and give rise to the valvular types of stenosis and atresia. Thus cases have been described in which endocarditis in the pregnant mother has been followed by the birth of a child with congenital heart abnormality.

The key position from the viewpoint of the teratologist lies in the development of the bulbus cordis. Errors in the development of this structure, which normally atrophies in the left ventricle and is incorporated into the right ventricle to form the infundibulum, accounts for many of the more important abnormalities. Thus associated with maldevelopment of the bulbus are such

* An address delivered to the Hull Medical Society on February 8th, 1935. Part I, "The Acyanotic Case," is by Dr. Muir; Part II, "The Cyanotic Case," by Dr. Brown.

abnormalities as defects of the aortic cusps, aortic stenosis, subaortic stenosis, defects of the upper part of the interventricular septum, the various forms of pulmonary stenosis, infundibular and valvular, and fusion of the pulmonary valves. In a relatively minor way defective development of the interauricular septum accounts for such abnormalities as a persistent ostium primum, with its necessary concomitant abnormalities of the auriculoventricular valves, persistent foramen ovale, a banal abnormality, and persistent foramen secundum at the upper part of the septum, associated with abnormal entry and disposition of the venous trunks entering the auricle. Finally, there may be a complete absence of the interauricular septum. Of English workers the name of Keith[4] is particularly associated with the bulbus cordis.

Numerous observers have recorded associated non-cardiac developmental defects. In Vierodt's[5] 700 cases 11 per cent. showed such defects. They occurred in 17 per cent. of Abbott's 850 cases. In a published series of forty cases of the maladie de Roger, Muir and Brown[6] found two mongols, and one case had absence of the xiphisternum. A recent case of dextrocardia, not of the mirror image type, had complete absence of the left breast and the left pectoralis major. We have seen transposition of the great vessels in spina bifida and "corrected" transposition associated with Little's disease. As regards familial incidence we have observed subaortic stenosis in brother and sister and in two brothers, and patent ductus arteriosus in two sisters. Mirror image dextrocardia has been seen in the father, two sons, and a daughter of the same family.

The diagnosis of a congenital cardiac defect depends very largely upon the presence of loud harsh murmurs and coarse thrills detected at an early age and showing remarkable constancy. These murmurs and thrills have a sharply localized point of maximum intensity and constant lines of propagation which differ in site from those of acquired valvular disease. Little alteration occurs over years of observation. Of considerable help in diagnosis is *x*-ray examination. All our cases are radiographed at a distance of six feet in the antero-posterior position, sometimes the oblique position, and at times with an opaque meal in the oesophagus. An accurate outline of the heart is thus obtained. Each case has also been studied with the electrocardiograph. The majority of patients that come to us have never been medically examined prior to the routine school entrance medical examination at the age of 5; a certain number are referred from infant welfare clinics. In some cases there has been a previous examination of the chest during some intercurrent disease at an earlier age, and a cardiac abnormality has then been noted.

The following table shows how the cases under observation are classified.

A. Cases of no clinical significance—			
Dextrocardia, mirror image	7		
Dextrocardia, without situs inversus	1		
B. Cases of clinical significance—			
1. Acyanotic group:			
Coarctation of the aorta	9	necropsy	3
Right aortic arch (uncomplicated)	1		
Bicuspid aortic valves	2	,,	2
Subaortic stenosis	21	,,	3
Congenital aortic stenosis	3	,,	3
Idiopathic hypertrophy	2	,,	2
2. Group with cyanose tardive:			
Defects of the interauricular septum	4	,,	1
Interventricular septal defects	80	,,	1
Patent ductus arteriosus	42	,,	3
3. Cyanotic group:			
Pulmonary stenosis	15		
Eisenmenger complex	3		
Tetralogy of Fallot	16	,,	1
Pulmonary atresia with septal defect	2	,,	2
Transposition of great vessels	2	,,	2
Corrected transposition	1	,,	1
Aortic atresia	1	,,	1
Total	212	,,	25

Coarctation of the Aorta

This term is applied to a group of cases in which there is narrowing, sometimes complete obliteration, of the descending arch of the aorta at a point just beyond the origin of the left subclavian artery where the ductus arteriosus enters the aorta. The condition is probably much more common than is generally supposed. There are two types described—the infantile and the adult. We are only concerned with the latter. Two theories are presented to explain its cause. The first, that of Craigie,[7] is concerned with the contraction of abnormal ductus-like tissue in the wall of the aorta. The second, that of Loriga,[8] is concerned with the anomalous redistribution of the primitive arches which form the aorta. A common associated abnormality is a bicuspid aortic valve.

The constriction of the aorta gives rise to a most characteristic clinical picture. The heart is enlarged, with some bulging of the chest wall and vigorous, diffuse pulsation. There may be no murmur over the praecordium, but when present it is systolic in time and is of maximum intensity in the aortic area. It is heard in the neck and posteriorly along the vertebral column. If a bicuspid valve coexists a diastolic murmur may be present from incomplete apposition of the aortic cusps or as the result of an infective endocarditis. The blood pressure in the arms is markedly raised, and exceeds that in the legs. The abdominal aorta is weakly felt, and as a rule no pulsation is appreciable in the legs and femoral arteries. The conclusive physical sign is the finding of visible pulsation in the collateral anastomosis formed by the posterior intercostal arteries with the scapular arteries or by the internal mammary and the epigastric arteries. Aberrant systolic murmurs and thrills may be detected in relation to these hypertrophied vessels. The enlargement of the intercostal vessels gives rise to the characteristic radiological appearance of notching of the ribs (Rosler,[9] Railsback and Dock[10]). Brown[11] has recently reported one of our cases in some detail.

One does but rarely take the blood pressure of a child, but the finding of hypertension must always evoke suspicion of coarctation. The femoral artery can, however, be readily felt, and this has become part of our routine examination. Intermittent claudication in the young, a circumstance that has arisen in two of our cases, should lead to similar suspicion.

Symptoms may be absent throughout life, the oldest age recorded being 92. Death may occur from intercurrent diseases or, more frequently, from sudden rupture of the aorta. If symptoms appear they do so most frequently at early middle age, when the altered circulation becomes loaded and failing compensation sets in. An especial danger is the onset of bacterial endocarditis, a danger to which all subjects of congenital heart disease are exposed.

Subaortic Stenosis

The lesion consists of an annular thickening of the endocardium of the left ventricle just below the aortic cusps (Fig. 1). The thickening, which is frequently calcified, may also involve the aortic cusp of the mitral valve, and encircles the wall of the ventricle at this point. There thus ensues a localized narrowing of the ventricular cavity. The most generally accepted explanation of the abnormality is that of Keith, who considers it to be due to a failure of atrophy of the bulbus cordis. Late foetal endocarditis has been suggested as a factor, but foetal endocarditis usually involves the aortic cusps causing valvular stenosis, although the two conditions may be associated as in the case of Shennan[12] and of Smart.[13]

In the purely subaortic case many patients reach adult life, as the fibrous ring offers but little obstruction to the passage of blood. These cases are not very common, and when found they have characteristic physical signs.

A thrill is usually present with maximum intensity in the second right space. A harsh, prolonged systolic murmur is also present, with loudest intensity at the same site, and heard over the praecordium and back. It is transmitted into the vessels of the neck, and may be heard in both axillary arteries. The apex beat is forcible and suggests left ventricular hypertrophy, and, seemingly out of all proportion, there is a weak radial pulse. The blood pressure is always low. Radiological

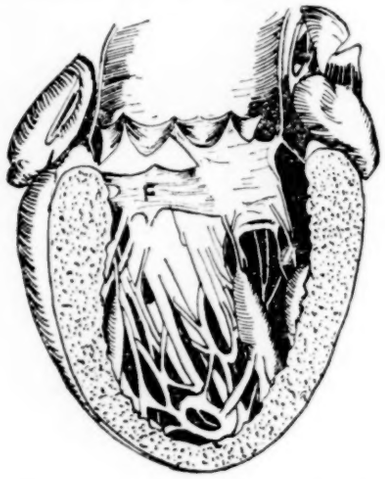

FIG. 1.—Subaortic stenosis. A band of fibrous tissue encircles the conus of the left ventricle just below the aortic cusps (F).

examination reveals left ventricular enlargement and some deviation of the aorta to the right of the sternum. The electrocardiogram in our cases was mostly normal. The abnormality gives rise to no characteristic symptoms, and such as are present are those of an aortic stenosis of any cause. Patients may come under observation by routine examination, or when they have developed infective endocarditis. Tuberculosis not infrequently coexists.

Patent Ductus Arteriosus

The ductus, which serves to carry blood in the foetus, after birth undergoes rapid involution, so that by the third week of extrauterine life it is impermeable. It may, however, remain patent throughout life, often in association with other congenital defects. Its existence as a sole abnormality has been considered rare. The cause of its persistent patency must be sought in some factor which keeps the blood pressure in the aorta or pulmonary artery at the same level as before birth, such as atelectasis of the lung, or a congenital defect of the wall of the ductus. The ductus itself may be so short that to all intents it is an aperture between the aorta and pulmonary artery. It may persist as a short canal of varying calibre, or it may assume aneurysmal proportions. Under normal conditions the flow of blood is from the aorta into the pulmonary artery, and consequently cyanosis is absent. Where the pulmonary pressure is for various reasons raised, reversal of flow may take place and transient or terminal cyanosis appear.

Generally symptoms are absent. In twenty cases recorded by Muir and Brown,[14] fifteen presented no symptoms; in the others dyspnoea and palpitation were complained of. Two patients had precordial pain; the pain in one instance closely resembled that of angina pectoris. Fits occurred in two cases, and we have seen this complication in a patient aged 18. A slender, gracile build with anaemia has been portrayed as characteristic of the condition. This is not so in our series, where the bulk of patients are average, or over average, in height and weight. One patient has since died of infective endocarditis, confirmed at necropsy (Brown).[14]

The physical signs are distinctive. The heart is not enlarged to any extent, but there may be some hypertrophy of the right ventricle. A thrill is present in more than half of the cases, systolic in time and of maximum intensity in the second left space. Gerhardt's ribbon dullness, an area of dullness three centimetres wide along the left border of the sternum in the second left interspace, is present in some cases. It is due to dilatation of the pulmonary artery, and whenever this dullness is found radiographic evidence of dilatation of the pulmonary artery is forthcoming.

A murmur was present in all cases with maximum intensity in the second left space. This murmur in its most typical form is the most pathognomonic of all murmurs. Gibson[16] described it as a continuous rushing sound, and others as a machinery murmur; when once heard it can never be forgotten. Whatever explanatory term may be applied, it has a characteristic systolic or diastolic accentuation. It may be purely systolic in time, but with the same site of maximum intensity. A short diastolic murmur may be present, the result of slight regurgitation from the ductus into the aorta, or, as in one case, due to infective endocarditis of the aortic cusps. Radiography affords important diagnostic confirmation. In twenty cases sixteen showed some dilatation of the pulmonary artery. In one there was a striking machinery bruit, but no dilatation of the pulmonary artery.

From our study we concluded that the combination of any three of the following signs was adequate for a diagnosis: (1) a machinery or continuous murmur; (2) a harsh systolic murmur with maximum intensity in the second left space, with a normal, accentuated, or reduplicated second sound; (3) Gerhardt's ribbon dullness; (4) radiological evidence of the dilatation of the pulmonary artery; (5) comparative absence of symptoms.

Maladie de Roger: Interventricular Septal Defect

Roger[17] in 1879 was the first to describe a congenital defect of the heart in which symptoms were absent although definite constant physical signs were present. It was not until 1891 that a case was verified at necropsy by Dupré,[18] who named the syndrome the maladie de Roger. Little has been added to Roger's original work except by way of confirmation. It is possibly the commonest of all congenital abnormalities, but the condition is so benign and symptomless that many cases escape observation or are designated by other diagnoses. Few cases consequently come to necropsy. Perry,[19] reviewing the material of a school cardiac clinic, found that 35 per cent. of 119 congenital cases fell into this group. As evidence of its benign nature practically all the patients in his series were leading a normal school life.

The designation "maladie de Roger" must be strictly applied only to those cases in which there is no other cardiac defect. Thus cases of septal defect with dextraposition of the aorta are excluded. The defect, which is due to maldevelopment of the bulbar septum, is situated at the upper part of the septum anterior to the undefended space of Peacock (Fig. 2). It is, as a rule, small, admitting only a probe, but in some cases may admit the finger. By reason of this defect there is an arterio-venous shunt from left to right, and thus cyanosis is absent. The latter only appears under such circumstances as pulmonary infection, or as a terminal event.

The physical signs are distinctive. A long, harsh mesocardial murmur occupies the whole of systole, and is sometimes prolonged into diastole. The maximum intensity is in the third and fourth spaces to the left of the sternum, and is conducted towards the apex with diminishing intensity as the periphery is approached. Exceptionally a diastolic murmur may be present and is the result of

fibrous tissue in relation to the defect involving and deforming the adjacent aortic cusp. Such an eventuality has been well described by Brandenburg.[20]

In a third of the cases a systolic thrill accompanies the murmur. There is no alteration in the pulmonary second sound. Parkes Weber[21] and others have reported cases in which a thrill and murmur present in childhood have disappeared with the growth of the child. They advance the explanation that with growth of the child and of the heart the defect may become so small as to give rise to no physical signs. It has also been suggested that fibrous tissue surrounding the defects contracts and so obliterates the hole.

FIG. 2.—Maladie de Roger.

Various radiological silhouettes have been described, particularly by the French school, as typical of the abnormality. A study of forty cases of our own left us convinced that there was no definitely characteristic picture. A globular heart, described by so many authors, is relatively infrequent. Symptoms in the maladie de Roger are conspicuous by their absence, and the patients in all our cases are engaged in a happy, active school life.

II.—THE CYANOTIC CASE

The fundamental signs of the cyanotic group are cyanosis and clubbing of the fingers and the usual presence of a systolic murmur and thrill. Further, this group of congenital cardiacs is the group of symptoms. It must be remembered, however, that up to the age of 2 the presence or absence of cyanosis is not an infallible diagnostic point in the separation of the cyanotic and acyanotic groups. It is possible for cyanosis to be delayed for some years in its appearance, and from this a logical conclusion can be drawn that it is unwise to be dogmatic about the exact nature of a defect in infancy, although its true nature may often be correctly surmised.

The key to the study of the congenital cyanotic case lies in its pathology. The defects present may be the result of a foetal endomyocarditis occurring after closure of the septa and causing sclerosis and adhesion of the valve cusps. Examples of this are congenital mitral and aortic atresia. The orifice of the aorta may be reduced to the size of a pinpoint. Such a case was recently under observation. At necropsy it was found that the ductus arteriosus was widely patent, the aortic orifice completely sclerosed, and blood to reach the systemic circulation passed through the ductus from the pulmonary artery. Naturally, permanent and deepening cyanosis resulted, and life was only prolonged for a few days. Most often the cyanotic case is associated with maldevelopment of the bulbus cordis for reasons indicated above, in that lesions of the pulmonary tract are directly related to faulty development of this structure, and, further, interventricular septal defects and dextraposition of the aorta own a similar cause. Consequently, it will be appreciated that defects in the cyanotic group are often multiple and complicated. The fact, however, that certain combinations occur so frequently lends support to the theory of a most common developmental origin.

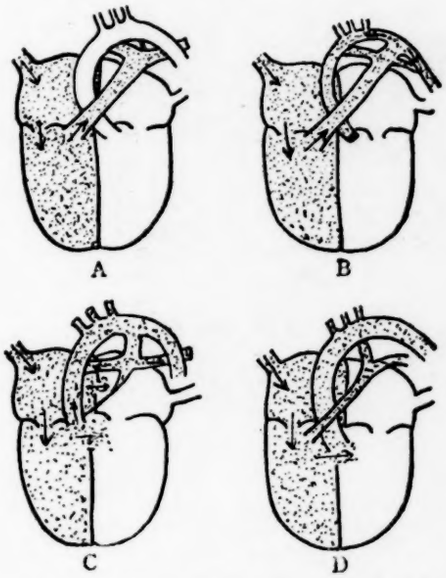

Fig. 3.—Origin of cyanosis in congenital heart disease. A, Normal. B, Aortic atresia. C, Pulmonary atresia. D, Fallot.

The presence of cyanosis at once suggests some abnormal communication between the two sides of the heart allowing a venous-arterial shunt. It can be calculated that if one-third of the output of the heart is shunted from right to left without being aerated cyanosis develops (Lundsgaard's[22] alpha shunt). Sites where such a shunt is possible are defects of the interventricular septum when associated with pulmonary stenosis where hypertrophy of the right ventricle makes such an event likely; patent ductus arteriosus if associated with other defects; and dextraposition of the aorta where the orifice of the aorta overrides a defect of the interventricular septum. Similarly cyanosis can occur in the absence of a septal defect in atresia of the aorta which is accompanied by a widely patent ductus, and in complete transposition of the great vessels with a closed septum for reasons that are at once obvious. The mere presence of an isolated septal defect or of a patent ductus arteriosus will not of itself permit cyanosis until such time as the normal direction of flow is reversed, when pressure in the right ventricle exceeds that in the left—for example, in lung disease or as a terminal event.

As a compensatory phenomenon polycythaemia develops and red cell counts as high as ten millions are frequent. Polycythaemia increases the viscosity of the blood, and thus the flow through the capillaries is retarded, allowing increased deoxygenation to take place (Lundsgaard's D factor). This stagnation in the circulation, particularly at the periphery, is the cause of the clubbing that is always present and proportional to the degree and duration of cyanosis. It follows, too, from this that cyanosis can always be brought out in a doubtful case by an exercise test which may be sufficient to raise the oxygen unsaturation of the blood just above the threshold value for cyanosis. With the establishment of cyanosis such accidents as haemorrhages and convulsive and syncopal attacks follow.

Diagnostic Features

The same criteria that apply to the recognition of the congenital nature of an acyanotic cardiac case are applicable here. Briefly they are the recognition of a heart lesion at an early age, the absence of any rheumatic aetiology, the presence of rough, harsh systolic murmurs and coarse thrills at definite sites which are not those of acquired valvular disease. The other important features are those peculiar to the cyanotic group—the presence of symptoms, the persistence of cyanosis, clubbing, right-sided preponderance in the electrocardiogram—together with certain rather characteristic radiological appearances.

It would be impossible to detail all the lesions and combinations of lesions that might be the cause of cyanosis, and only a few of the more readily recognizable will be mentioned here. For convenience in their description they may be divided into cases showing moderate, marked, or extreme cyanosis.

MODERATE CYANOSIS

Of those showing moderate cyanosis the commonest is a pulmonary stenosis with a closed ventricular septum. Such a case may not betray any cyanosis until the twenties, and existence may be prolonged for over fifty years. Once cyanosis sets in it gradually becomes more marked, and clubbing keeps pace with it. A systolic thrill is felt over the upper part of the sternum, with maximum intensity in the second left interspace. A loud, harsh systolic murmur is heard in the same situation, and is usually not heard in the neck. The pulmonary second sound is diminished or absent. Radiological examination reveals bulging of the pulmonary arc, and the electrocardiogram right axis deviation of varying degree.

MARKED CYANOSIS

Of cases with marked cyanosis, pulmonary stenosis with a defect of the interventricular septum and dextraposition of the aorta is the commonest type. This combination of defects, known as the tetralogy of Fallot,[23] occurs in about 85 per cent. of all cyanotic cases attaining adult life, and consequently a clinical diagnosis of the tetralogy would be justifiable on these grounds alone. Cyanosis results from blood passing from right to left and directly into a dextraposed aorta, the *vis a tergo* being supplied by a hypertrophied right ventricle, the result of obstruction in the pulmonary tract. Cyanosis sets in fairly early and, together with clubbing, may become extreme. Such a degree of cyanosis is accompanied by dyspnoea, either paroxysmal or provoked by the least exertion. There may be convulsive or syncopal attacks. Polycythaemia is the rule, and haemorrhages may occur from mucous membranes.

In about a third of the cases a thrill may be felt over the pulmonary area. A systolic murmur is usually present in the same situation, although cases do occur in which both murmur and thrill are absent. In any case the thrill and murmur are never such a conspicuous feature as they are in pulmonary stenosis with a closed septum. This is because the stream of blood, diverted by the pulmonary obstruction, passes through the septal defect into the more deeply placed left ventricle and aorta—that is, away from the surface of the chest. The murmur is usually heard in the neck, being carried along with the venous shunt into the aorta. This conduction into the neck is considered by some to be a capital point in diagnosis (Laubry and Pezzi[24]). The murmur may be heard in the back. Radiological examination shows the typical *cœur en sabot* silhouette of the heart with upturned apex on account of right ventricular hypertrophy and, most significant, a concavity at the site of the pulmonary arc. The electrocardiogram reveals right axis deviation. Such a condition has been compatible with life up to the age of 59 (White and Sprague[26]).

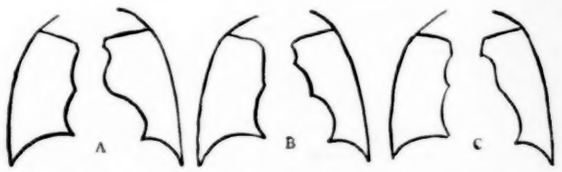

FIG. 4.—Radiological silhouette of the heart in (A) the tetralogy of Fallot, (B) pulmonary stenosis, (C) the Eisenmenger complex.

In a similar category of cyanosis fall those cases in which there is a defect of the base of the interventricular septum with dextraposition of the aorta, but with a dilated pulmonary artery. Such a combination is known as the Eisenmenger complex. Naturally cyanosis and clubbing, with their concomitants, are present. The physical signs are similar to those of the maladie de Roger, but with additional signs and symptoms of a venous-arterial shunt. The radiological picture is distinctive in that there is a prominent pulmonary arc and deviation of the aorta to the right.

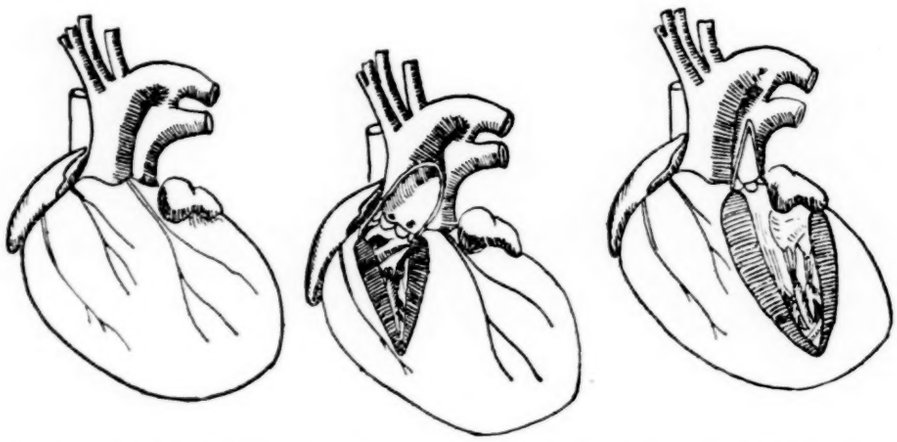

FIG. 5.—Complete transposition. Aorta rises anteriorly and from the right ventricle. Coronary arteries arise in the transposed aorta.

EXTREME CYANOSIS

As a type of the group with extreme cyanosis two conditions may be described, since they are likely to be encountered at necropsy of infants who die within a few months of birth: they are transposition of the great vessels with a closed septum, and pulmonary atresia. In transposition of the arterial trunks the aorta arises

anteriorly from the right ventricle and the pulmonary artery posteriorly from the left ventricle. Obviously the systemic circulation is filled with venous blood. Consequently cyanosis dates from birth, and life is not prolonged for more than a few weeks at most. A similar transposition of the vessels with an interventricular septal defect is better tolerated, particularly if the aorta overrides the defect, or if the transposition is corrected so that the transposed vessels arise from their respective ventricles.

FIG. 6.—Pulmonary atresia. Child aged 9 months. Right ventricle has been opened. The aorta arises from the right ventricle. A large interventricular septal defect is shown by an arrow.

Pulmonary atresia with a defect of the interventricular septum is another cause of extreme cyanosis from birth. The pulmonary artery may be completely obliterated, and be represented by a fibrous cord. The aorta arises either over a large defect of the septum or entirely from the right ventricle. The ductus arteriosus is widely patent, and gives off the pulmonary arteries. The foramen ovale is open. A systolic murmur may or may not be present in the pulmonary area.

Some Observations on Treatment

As a general rule we have found it advisable to restrict diagnosis to these main types, although other defects and combinations of defects may be suspected on clinical grounds. Actually it will be found that most of the cases encountered fall into these groups. The point that we would emphasize is that cases in the cyanotic group are the ones that present symptoms and are, in fact, the most handicapped in life. It is a regrettable tendency to-day that once a heart abnormality is diagnosed the patient is immediately restricted in his activities and school life. This is completely unjustifiable in the acyanotic group except in certain instances. Experience has shown that even in the presence of the most marked physical signs the child is fully capable of all the tasks that going to school entails. Patients with the maladie de Roger, patent ductus arteriosus, or subaortic stenosis rarely present any symptoms referable to their hearts; in fact, in the bulk of cases the discovery of a lesion is due to some fortuitous circumstance, such as a school medical examination. Patients with coarctation with hypertension require some supervision, and they may not be able to play games on account of circulatory difficulties.

A different attitude must be taken towards the average cyanotic case. On account of the dyspnoeic tendencies some restrictions as regards exercise must necessarily be imposed. Each case must be judged on its merits, and except in the gravest cases with convulsions and haemorrhages it is a mistake to advise exclusion from school. These children and young adults can never become manual labourers, and if they have had no schooling they cannot compete for sedentary work. If they have no education they cannot amuse themselves, and ultimately they become a charge on the community. We have found no marked incidence of mental defect or retardation in our series.

Digitalis has little use, and its chief indication, auricular fibrillation, has occurred but once in our series. This observation corresponds with that of other workers in the same field. When fibrillation occurs it is mostly in cases with an auricular septal defect, which causes auricular distension and, possibly for the same reason, modifies the spread of the impulse. Congestive failure is likewise rare. In deeply cyanotic cases periodical venesection is useful. Three major causes of death take toll of the congenital cardiac case. They are, in order of frequency, pulmonary tuberculosis, infective endocarditis, and syncope.

Space forbids the amplification of the bare outline of the subject given above. Our approach to a case is always by a careful history, which may in itself establish the aetiology. The patient is then weighed and measured. A thrill is sought in all positions, and its point of maximum intensity determined. On auscultation the sites and maximum intensity and propagation of any murmurs are noted, and observation is made of the presence or absence of the pulmonary second sound. Our examination is completed by a seven-foot *x*-ray picture and an electrocardiogram. Of the value of these last two special methods we have no doubt. We consider no examination of the congenital heart complete without an *x*-ray photograph. There are now such a number of sufficiently characteristic radiological features described as to make it necessary for accurate diagnosis. We need only mention the ductus arteriosus, coarctation, pulmonary stenosis, and the tetralogy of Fallot. The electrocardiogram is of service in a doubtful case. The finding of a right axis deviation and of large P waves helps to clinch the diagnosis in a difficult case. There is no characteristic electrocardiogram of congenital heart disease.

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The third International Congress of Sanitary Aviation will be held at Brussels in June, when the subjects for discussion will be the organization of private and commercial aircraft for health purposes in peace time, the organization of first aid in public air transport, and the use of aircraft in times of crisis

TIME FACTORS IN THE PASTEURIZATION OF MILK

BY

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Now that pasteurization is established as a technical and commercial process capable of providing the community with a safe and economic food, it may be expedient to inquire how far its efficiency depends upon a comprehensive observance of time and other factors associated with its constituent procedures. This seems the more necessary at the moment, since there is a somewhat general impression that pasteurized milk has poor keeping qualities and that the name covers the usage of less clean, or old, market milks. Of course the latter is not true: the majority of the distributors aim at the production of the best possible commodity. Nevertheless, the medical attendant who recommends pasteurized milk for the patient or the household has frequently to listen to such views. They can only be met satisfactorily by a detailed knowledge of the process and its possibilities. For the housewife is, as a rule, more concerned with the economic than with the hygienic side of the supply. The breakfast milk that has soured during the night, or leaves grains of dirt at the bottom of the jug, forms a distressing contemplation.

It has to be admitted that there are valid grounds for this attitude from the standpoint of utility. So much time seems to be required for transport and delivery. While local dairies may collect, cool, and deliver to a small round twice a day, the milk collected from a radius of fifteen to twenty miles only under exceptional circumstances reaches the consumer before the following morning. As the distance is increased, so also is the delay between collection and delivery. For pasteurization there intervene, in addition, the processes of handling and heating. The time required for these has been perhaps insensibly extended by the sense of safety that the name engenders. Conditions vary in each district, and road and train mileage play their part.

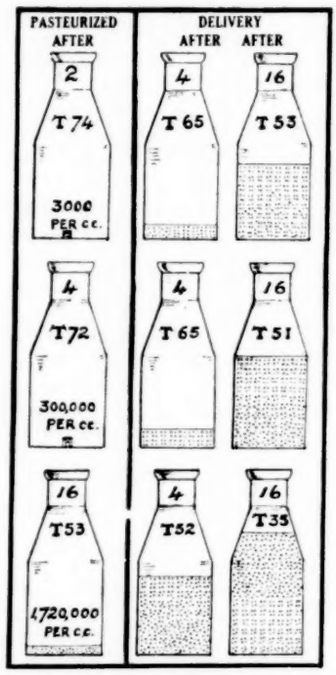
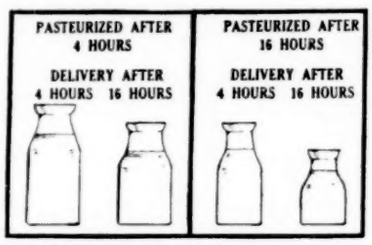


Diagram of bacterial contents of milk after delayed handling. P. and D. numbers = hours delay. T = hours of tainting. Dots = bacteria.



Delays expressed in terms of keeping qualities, indicating comparative values of milks to consumer.

But as an average it may be taken that during winter time the collecting lorries reach the farms in the early morning and pick up, not only the morning's milk, but that of the evening before, which has stood in churns in the farmer's dairy. Both lots are then pasteurized during the morning at an average of three to sixteen hours after milking. In the summer a second collection is made about 5 to 6 p.m., the milk being placed in cold storage until pasteurization the following morning. When the milk is carried long distances by train the process is reversed. But, in all the arrangements, the pasteurized product is not available until the late morning, so that when the milk reaches the consumer it may be anything from twenty-four to thirty-six hours old.

Present Investigation

It has been an object of the experiments now described to ascertain if these times constitute the optimum periods or whether any others could with advantage be substituted. To this end winter milks have been collected directly from the milk pail in the cowshed and also after passing over the cooler. Pasteurization has been carried out at two, four, and sixteen hours later, the milk being kept meanwhile at 40° to 45° F. As there has been no handling in churns, and no contact with filter residues, bottles, or cups, there has been little chance of external contaminations.

In Table I the effects of delayed pasteurization and delivery upon the keeping properties and bacterial contents of milk are demonstrated. It may be noted that in the quoted experiment the milk that was pasteur- hours, whereas if it had been delivered to the consumer the next morning had an economic life of only thirty-five hours, whereas if it had been delivered within four hours it would have remained sweet for fifty-two hours. Neglecting the intervening but significant figures, it appears that if the delay before pasteurization of the milk had been only two hours the delivery after four and sixteen hours would have extended its utility to sixty-five and fifty-three hours. From the bacterial standpoint the early pasteurization seems to exert a remarkable restraint upon the proteolytic and pin-point colonies (streptococci and various unclassified Gram-negative bacilli) as well as conducing to a sparsity

TABLE I.—*Bacterial Counts, showing Effect of Delays in Pasteurization and Delivery*

Delays in Pasteurization. (Kept at 40° F.)

	Total c.cm.	+	±	Alk.	P1	P2	
Two hours ...	3,000	—	1,000	—	2,000	—	(
	Tainted 74 hours. A.G. in 0.5 c.cm. = 0 ⟶						(
	Curdled 116 ,,						(
Four hours ...	300,000	—	70,000	—	30,000	200,000	(
	Tainted 72 hours. A.G. in 0.5 c.cm. = 0 ⟶						(
	Curdled 114 ,,						(
Sixteen hours	1.72 m.	330,000	60,000	300,000	—	1.03 m.	(
	Tainted 53 hours. A.G. + in 0.5 c.cm. ⟶						(
	Curdled 94 ,,						(

Delays in Delivery. (Kept at 45° F.)

	Total c.cm.	+	±	Alk.	P1	P2	T
Four hours	1.580 m.	—	1.08 m.	500,000	—	—	65 hours
Sixteen hours	16.40 m.	2,000,000	16 m.	200,000	—	—	53 ,,
Four hours	5.85 m.	950,000	900,000	300,000	—	3.7 m.	65 ,,
Sixteen hours	121 m.	70 m.	9.1 m.	11.6 m.	0.1 m.	43.2 m.	51 ,,
Four hours	17 m.	6.5 m.	6 m.	—	—	4.5 m.	52 ,,
Sixteen hours	27 m.	5 m.	5 m.	—	—	17 m.	35 ,,

m = millions. + = acidifiers. ± = weak acidifiers. Alk. = alkalines. P1 = peptolytics. P2 = pin-point colonies. T = tainted.

of acid-producing organisms. On the other hand, the outstanding increases of all these types and the appearance of coliform bacilli after sixteen hours tend to emphasize the differences resulting from lack of more speedy handling. The findings also suggest that some of the heat resistants and the coliform organisms reported in pasteurized milk may be attributed to the effects of delay rather than invariably to technical faults in the plant.

Thus from the laboratory standpoint there seems no reason why the consumer should not be supplied with milk that contains a minimal rather than a maximal number of bacteria, that, apart from purely pathogenic action, may possess latent capacities for souring, tainting, and digestive disturbances.

FLASH HEATING REPLACING COOLER

In view of the lessened bacterial content and enhanced keeping properties demonstrable in the samples of milk pasteurized after only two or four hours' delay, it lies near at hand to wonder whether the protective heating could not be interposed at a still earlier period. The compulsory cooling of milk introduces many opportunities for external contaminations: its efficacy is variable, especially during summer water shortage, when its action is most called for. It seemed worth while, therefore, to ascertain the effect of replacing the cooler by "flash" heating. Accordingly, milk has been taken directly from the milking pail, its natural temperature raised to superpasteurization temperatures, and its bacterial counts and keeping properties compared with portions from the same pail that were passed over the cooler and pasteurized in the usual manner. Four minutes were required, as a rule, to raise the temperature of the milk to 145° F. After heating, the milk was transferred from the heater to a sterile bottle, cooled quickly, and examined in the laboratory within twenty minutes.

TABLE II.—*Flash Heating at Dairy Cowshed compared with Thirty Minutes' Pasteurization after Varying Delays (Milk held meanwhile at 50° F.)*

	Tainted	Curdled	Bacteria in 0.5 c.cm.	Cream Lines
	days hrs.	days hrs.		
Flash temperature:				
160° F.	11 0	18 0	Coliform absent	Slightly retarded
155° F.	7 0	13 0	,,	Normal
150° F.	3 12	8 4	,,	,,
145° F.	3 6	6 20	,,	,,
Pasteurization (after cooling):				
Delay, 2 hours	3 2	4 20	,,	,,
,, 4 ,, ...	3 0	4 18	,,	,,
,, 16 ,, ...	2 5	3 22	A.G. +	,,
Raw (after cooling)	3 2	4 22	A.G. +	,,

The cream line was slightly decreased by the flash heating at 160° F., but was unaltered by the other temperatures (Table II). All the "flash" heatings yielded better keeping properties than those of delayed pasteurization. None of them showed presence of coliform organisms, although these were demonstrable in the raw cooled specimen and in the sample that had been kept sixteen hours before pasteurizing.

Differential bacterial counts (Table III) show confirmatory findings. The raw milk prior to cooling had a total count of 3.5 millions, 1.274 millions slightly acid, and 1.180 millions pin-point colonies. In the flashed portions the total was cut down to 228,000, with an absence of pin-points. This compares well with the sample pasteurized for twenty minutes that yielded a total of 412,000 and 11,000 pin-points. The figures stated trace the total and interacting changes up to the hour of curdling. The "flashed" soured two days later than the pasteurized, and although coliform organisms were demonstrable in 0.5 c.cm. of the raw and pasteurized portions, they were absent in the flashed. The pasteurized sample curdled when added to hot tea on the eleventh day, but the "flashed" did not curdle similarly until the thirteenth day.

It has been claimed that "flash" heating alters the flavour and cream line to a less extent than thirty minutes at 145° F.[1] Evidence has been obtained that "flash" heating for fifteen seconds destroys tubercle and other pathogenic bacilli, although the margin with commercial

TABLE III.—*Differential Bacterial Counts at Varying Intervals after Flashing at Dairy and Early Pasteurization* (Milk held meanwhile at 50° F). Cultures incubated at 22° C.*

	Total	+	±	Alk.	P1	P2	Bacteria in 0.5 c.cm.
Flashed at 155° F.:							
Counts made 20 minutes later	228,000	5,000	135,000	—	88,000	—	*B. coli* absent
,, ,, 2 hours ,, ...	2.15 m.	20,000	750,000	—	1.38 m.	—	
,, ,, 6 ,, ,, ...	7.15 m.	200,000	6.5 m.	—	45,000	—	
,, ,, 24 ,, ,, ...	84.6 m.	1.5 m.	51 m.	2.1 m.	12 m.	18 m.	
,, ,, 4 days ,, ...	185 m.	50 m.	30 m.	25 m.	10 m.	70 m.	
,, ,, 13 ,, ,, ...	3,430 m.	60 m.	140 m.	530 m.	—	2,700 m.	Tainted 7th day. Curdled 13th day.
Pasteurized at 145° F.:							
Counts made after cooling and heating—20 minutes later	412,000	61,000	332,000	—	8,000	11,000	Coliform organisms present
,, ,, ,, 2 hours ,, ...	540,000	—	220,000	—	200,000	120,000	
,, ,, ,, 6 ,, ,, ...	12.9 m.	—	5.65 m.	—	—	7.15 m.	
,, ,, ,, 24 ,, ,, ...	279 m.	—	89 m.	13 m.	107 m.	70 m.	
,, ,, ,, 4 days ,, ...	155 m.	40 m.	80 m.	10 m.	—	25 m.	
,, ,, ,, 6 ,, ,, ...	9,020 m.	1,400 m.	1,840 m.	1,010 m.	10 m.	4,760 m.	Tainted 6th day
,, ,, ,, 11 ,, ,, ...	32,160 m.	10,240 m.	9,760 m.	3,200 m.	—	8,950 m.	Curdled 11th day
Flash Heating at dairy cowshed plus pasteurization 20 minutes later. Initial total and differential after standing at 50° F. for 24 hours:							
Flashing plus pasteurization	3,000	—	1,000	—	2,000	—	Tainted 14 days. Curdled 21 days
Pasteurization without Flashing...	6,000	—	4,000	—	2,000	—	Tainted 6 days. Curdled 12 days

m. = millions. + = strong acid producers. Alk. = alkali producers. ± = weak acid producers. P1 proteolytics. P2 = pin-points. The raw milk (after cooling) yielded—Total 3.458 m. (+1.274 m., Alk. 210,000, P1 79,100, P2 1.183 m.). It was tainted in five days, and curdled in eight days with a count of 126,000 millions.

* All counts were made from plates of milk-proto media incubated forty-eight hours at 22° C. as described in *Pasteurized Milk*, issued by the Department of Preventive Medicine, University of Bristol, 1935 (Gordon, Old King Street. Bristol).

milk is a little too slight for safety.[2] The findings now stated point to the possible value of flash heating in the dairy and a shortened heating at 145° prior to distribution. When the flashing was combined with subsequent pasteurization the counts were halved and the keeping period extended (Table III).

Although the adoption of this practice would involve a period for the development of technical factors, the immediate provision for pasteurization near the sources of supply and the elimination of delays prior to distribution are suggestions that may merit the attention of those interested in the increased consumption of safe milk.

Summary

It is submitted:

That milk must be regarded as a perishable commodity calling for efficient preservation and rapid delivery. Delays between producer and consumer bring hardships to both.

That more effective preliminary measures might be carried out prior to transport; and "flash," or usual pasteurization, might precede, not follow, long-distance transport.

That morning and evening pasteurizations might be advantageous, at least during summer months.

That as cream lines are unaffected by "flash" heating there might be a similar protection for cream marketed in bulk

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ERYTHEMA NODOSUM AND FOCAL INFECTION

BY

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The need for the recognition of more than one factor in the aetiology of erythema nodosum is being increasingly admitted. Four main theories have been suggested. First, that it is a specific infective disease *sui generis*. This theory was brought forward by Trousseau[1] and later by Lendon[2] of Adelaide, who suggested the name of nodal fever; Symes and Robert Hutchison have also favoured this view. Experimental evidence in support has been adduced by Moon and Strauss,[3] who have satisfied Koch's postulates with an organism of the genus *Corynebacterium*, which they cultivated both from the subcutaneous tissues and from the blood of patients presenting this syndrome. Secondly, that it is a manifestation of acute or subacute rheumatism, a theory introduced by Mackenzie[4] and handed down by generations of textbooks. G. Josephsen[5] records that out of forty cases of erythema nodosum complicated by some other ailment, in as many as twenty-six the disease synchronized with an attack of rheumatic fever, while in only four could tuberculosis be definitely demonstrated. He comes to the conclusion, however, that the true interpretation of erythema nodosum is that of anaphylactic reaction to various protein poisons, including tuberculin.

A third theory is that it is an early symptom of infection by tuberculosis. This view has been consistently maintained by the Scandinavian school, notably by Mogensen,[6] Wallgren,[7] and Giertsen,[8] who claim that the evidence of *x*-ray films, gastric lavage, and tuberculin tests proves that the majority of their cases, up to 95 per cent., are tuberculous. This theory has received strong support from Dickey[9] in America, and from Collis[10] as the result of his investigations in London and Dublin. Collis has also very clearly demonstrated that a small proportion of his cases are due to an infection by a haemolytic streptococcus, and that the eruption in these cases is usually preceded by an acute pharyngitis and often followed by a polyarthritis. He asserts, however, that even in London, where streptococcal infection is common, not more than 15 per cent. of cases could be ascribed to this cause, that the balance are mainly if not all tuberculous, and that our attitude should be to regard every case as tuberculous until proved otherwise. Dickey, from his experience in children, is equally emphatic on this point. Forman and Whitwell,[11] from a recent series at Guy's Hospital, consider that the rheumatic theory prevalent in England is undoubtedly a menace to the proper treatment of erythema nodosum, which, they assert, should be regarded as tuberculous in every case, and the sore throat that sometimes precedes the appearance of the nodes is merely an activator of tuberculous foci. Such a line of reasoning could hardly apply in Collis's cases, because all his patients who reacted strongly to streptococcal endotoxin had sore throats, and yet in most of them the Mantoux test was negative.

The fourth theory is that the condition is a reaction to various bacterial allergens, of which only those of the *Mycobacterium tuberculosis* and a haemolytic streptococcus have been recognized. This is the view held by Collis. Josephsen, as noted above, comes to much the same conclusion. Collis does, however, record a case definitely associated with a meningococcal infection, and at the same time mentions a similar one, quoted to him by Robert Hutchison, but he considers that such cases are only of academic importance. In this connexion also it is interesting to note that Lendon,[12] who in 1905 was the apostle of the nodal fever theory, in 1927 admitted that there was an increasing tendency to regard these cases as tuberculous, and at the same time he quoted a new theory suggested by Colonel J. C. Kennedy in the *R.A.M.C. Journal* for July based on the observation of four cases of meningococcal septicaemia, and that was, "Given a case of erythema nodosum, suspect meningococcal infection."

Gerald Slot,[13] in a recent publication, states that he considers the majority of cases in London are due to streptococcal infection and are not tuberculous, but the only evidence he brings forward in support of his statement is the improvement shown in four cases following the administration of antistreptococcal serum. Although the histories of all these cases certainly do symptomatically suggest a streptococcal infection no further evidence such as that of skin tests or cultures is adduced in support of the diagnosis. In this regard, the value of the intracutaneous test as a means of differentiation between the streptococcal and the tuberculous cases has been fully demonstrated by Collis, who utilized a haemolytic streptococcal endotoxin for the purpose. Apart from streptococcal and tuberculous foci, however, the relation of erythema nodosum to other focal infection does not seem to have been demonstrated. The history of the following case, therefore, should be of particular interest.

Case Report

The patient, a nurse aged 29, was first seen by me in September, 1932. She had a temperature of 101°, and displayed an eruption of eight or more typical nodes of erythema nodosum over both tibiae and a small one over the left elbow. An apparently glandular mass the size of a pigeon's egg was found in the right axilla, but was not tender. The patient stated that she had first noticed this mass a fortnight previously, when it had been larger and painful. There was no history of abrasion or sepsis in the area drained by these glands. Examination was otherwise negative; her chest, nose, and throat appeared normal, but she had six crowned and pivoted teeth with bridgework, all dating back some years.

There was a gradual subsidence of symptoms, but she again became febrile after ten days, with enlargement and tenderness of the glandular mass, while concomitantly fresh nodes appeared over the tibiae. These again faded, but the temperature remained slightly above normal for a fortnight. The glands then became more tender, with some softening in the centre; at the same time a fresh crop of large nodes appeared over both tibiae with a considerable amount of oedema, also a tense swelling under the periosteum of the left tibia almost suggestive of pus formation. The case was then referred to Dr. Lilley, who opened the axilla in the Brisbane Hospital and evacuated a large quantity of pus. No bacteriological examination of the latter was made. Recovery was prompt and complete. Despite the fact that the evidence so far pointed to a septic factor, it was considered advisable to exclude tuberculosis. A Mantoux reaction was only mildly positive, and the *x*-ray examination of her lungs showed a slight increase of fibrosis but no evidence of tuberculosis, both findings being quite compatible with her city life.

GROSS INFECTION OF THE TEETH

A further eruption of nodes appeared in February, with malaise, so in March all the gold crowns and pivoted teeth were extracted two at a time, at intervals of ten days and a week. The roots of these teeth revealed evidence of gross sepsis and their odour was extremely offensive, the last two to be extracted being the most grossly infected; there was considerable local inflammatory reaction after the last extraction. Two days later a series of crops of nodes began to appear on the anterior and outer aspects of both knees and legs, followed three weeks later by a polyarthritis affecting the knees, ankles, wrists, and small joints of both hands.

It was more than a month before the patient could walk without pain. She remained well for two months, putting on weight and feeling better than she had for a year. Then a further slight eruption, two small nodes on each leg, appeared, with some malaise. The only remaining teeth to incur suspicion were two lower molars with big fillings, which were probably devitalized; these were extracted and were found to be definitely, but not grossly, infected. A culture was made from one apex and a vaccine of *Staphylococcus albus* and a Gram-positive bacillus prepared. A short course of the vaccine was given, and it appeared to expedite recovery, but one could not exclude the possibility that the micro-organisms grown were not of the main aetiological importance. An intracutaneous test with a potent haemolytic streptococcal endotoxin was completely negative. Likewise, at no time during the course of the attacks had there been any suggestion of a throat infection. The patient put on six pounds in three months, and felt better than she had for years; there has been no further relapse.

Discussion

The points I would emphasize in the above history are:

1. The initial incidence of the rash a fortnight after the onset of the axillary lymphadenitis, and the further outbreak of nodes concomitantly with two subsequent exacerbations of the lymphadenitis, the last culminating in pus formation when the exaggerated intensity of the reaction over the tibiae was especially notable; also its prompt subsidence following surgical evacuation of the axillary abscess.

2. The subsequent recurrence of the eruption on three occasions, once severely, following the extraction of six grossly infected teeth; on this occasion fresh nodes recurred for several weeks and were succeeded by a generalized polyarthritis.

3. The prompt and progressive improvement in the patient's general condition after extraction of two more infected teeth, and the maintenance of that improvement for the fourteen months up to date.

I consider that the chain of evidence in this case points to the lymphadenitis and the dental sepsis as aetiological factors in the syndrome of erythema nodosum. It seems only reasonable to assume that the lymphadenitis was due to the dental sepsis, and by a blood stream infection, as there was no involvement of any cervical glands. An alternative suggestion might be made that the lymphadenitis and the dental sepsis, as separate factors, each activated a latent specific infection, analogous to herpes simplex, producing the syndrome of erythema nodosum. If that were so an explanation would be lacking for the lymphadenitis. According to Collis a somewhat similar suggestion has been made by Fornara, that erythema nodosum is caused by a specific virus, but that the eruption only appears when the patient is in the allergic state, and, consequently, as tuberculin is the commonest allergen, the condition is most frequently associated with tuberculosis. The weight of experimental evidence is against such a theory, for Osler[14] states that guinea-pigs have been successfully inoculated with tubercle bacilli from the lesions, while Rosenow[15] was able to isolate a diphtheroid bacillus, closely resembling in some stages the streptococcus group, from the blood and skin lesions of eight cases, and to produce similar lesions by intravenous inoculation of the organism. The findings by Moon and Strauss have been already quoted. Such experimental evidence only strengthens the weight of clinical observation that the syndrome of erythema nodosum expresses a reaction to various bacterial allergens. Nevertheless its relation to tuberculosis has been established in such a large proportion of cases that we should, with Collis, regard every one as tuberculous till proved otherwise.

Summary

A case of recurrent erythema nodosum is presented in which the attacks were induced by an axillary lymphadenitis in the first place, the maximum intensity of the reaction being concomitant with suppuration of the glands. Immediate and sustained relief from the attacks followed the evacuation of the pus, but such relief was not permanent until every focus of the dental sepsis present, which was both gross and extensive, had been eradicated. There was evidence, moreover, that neither infection by the *Mycobacterium tuberculosis* nor by the *Streptococcus haemolyticus* was a factor in the production of the syndrome.

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T. Z. Gourevitch (*Klinichekaya Medizine*, vol. iii, 1935) has successfully treated with pine-needle infusion twenty-five patients suffering from scurvy. His work is based on the discovery that 1 kilogram of pine needles gives 1,670 antiscorbutic units. Vitamin C is obtained by the following process. Twelve grams of pine needles are pounded in a mortar, water being subsequently added in the proportion of 9:1. The infusion, which takes twenty hours before it is ready for use, is then filtered, and given as it is in two or three portions during the day. The full course of treatment is twenty-one days. The infusion must be made fresh on each occasion, and the needles should be one to two days old.

CORONARY OCCLUSION IN A PATIENT AGED TWENTY-FOUR YEARS

BY

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Though the diagnosis of coronary thrombosis is made in increasing numbers at the present time, I have not come across any case in the literature available here where it has occurred below the age of 25 years. The case described below will be of interest on that account.

Case Record

Mr. J., aged 24, is an unmarried Cingalese. He is a well-built athletic young man accustomed to hard physical exercise. He plays cricket, Rugby football, and tennis, and is an enthusiastic boxer and athlete. He was in perfect health up to the date of his illness, which started on March 17th, 1934. On that day he felt particularly dull, and instead of his usual routine on a Saturday afternoon, he slept from 1 p.m. to 5 p.m. He then had a cold bath, and rode out on a motor cycle for about half an hour. At 9.30 p.m. he had his usual dinner of rice and curry, but for some reason he had to rush through it and immediately afterwards engage in some physical work. He retired to bed at 10.30 p.m.

He was in bed for about a quarter of an hour when he noticed he was getting giddy and felt dazed. He felt "lifeless" in his left upper and lower extremities. At the same time he noticed he could not see distinctly—"he was looking through a haze." This attack lasted about five minutes and was not accompanied by any pain. He soon felt quite well, but after five minutes he had a second attack. This time the symptoms were more severe. He became breathless and found difficulty in both inspiring and expiring, as if—to use his own words—something was obstructing the airway. At the same time he experienced severe pain which was strictly localized to the left nipple area. It was a "stabbing pain" with severe exacerbation synchronous with the heart-beat. There was also slight pain which ran down the inner side of the left arm. At the same time he felt, as he described it, "lifeless in the whole body." In a few minutes the pain and breathlessness became steadily worse. He left his bed and walked about. He felt sick and vomited once, and involuntary defaecation occurred. He felt some slight relief when walking about, but the pain did not leave him, and so he again got into bed. For the rest of the night he was in much the same condition; towards morning he felt much better, the severity of the attack becoming progressively diminished.

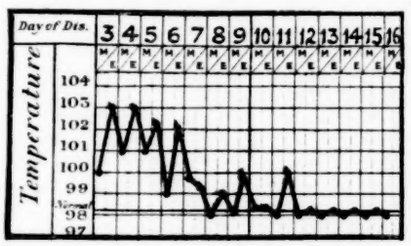
He saw a doctor in the morning, when he was given a belladonna plaster to his chest and a mixture. This latter he could not retain. He felt better during the day (March 18th), although the symptoms were there in slight form. He had a temperature the whole of that day. At about 9.30 p.m. the symptoms came on again, and soon became severe. He entered the General Hospital, Colombo, early next morning under the care of Dr. E. Garvin Mack.

As regards his family history, his mother died at the age of 45 of a heart attack. It came on at night quite suddenly, and lasted five to ten minutes, during which she had severe pain and dyspnœa. She soon became unconscious and died. His father, aged 65, is in very good health.

Condition on Examination.—The patient is a well-built, athletic young man. The apex beat was 3/4 in. outside the mid-clavicular line in the fifth space. There was no appreciable enlargement to the right. The pulmonary second sound was reduplicated, and there was a systolic bruit at the inner end of the fourth left interspace. The pulse was 100, regular; the blood pressure 100/75. There was nothing abnormal detected in the lungs, liver, spleen or genito-urinary system. The bowels were regular. The temperature on admission was 100° F., but in the course of the day went up to 103°. For another six days he had a temperature ranging between 99° and 103°. His blood was examined for the Wassermann reaction, and gave a negative result. There was no history of exposure to syphilitic infection. A total white cell count done on March 28th gave 10,400 per c.mm.

An electrocardiogram (not shown) was taken on March 23rd, and repeated on two subsequent occasions. In the first, taken six days after the attack, the S–T interval is raised above the base line in Lead I, and the R–T interval depressed in Lead III. There are no T waves in these two leads, while in Lead II the T is inverted. In the second, taken on April 12th—that is, twenty-five days after the attack—the S–T interval is coming down to the base line, and the T wave is seen inverted in Lead I while the T is getting back to normal in Lead III. In the third one, taken one month and twenty-four days after the attack, the T wave is inverted, and there is notching of the S wave in Lead I, while in Leads II and III the T waves have come back to normal.

Treatment and Progress.—On admission the patient was given morphine, 1/4 grain, by injection. He was in addition put on lacarnol (Bayer), 15 drops three times a day. His further progress was as follows. March 20th: feeling much better; temperature between 101° and 103°, and dull pain over the praecordium. April 5th: there were occasional attacks of pain along the left arm. April 10th: occasional attacks of discomfort in the chest; blood pressure 110/80.



April 25th: the chest was *x*-rayed, and the radiologist reported enlargement of the left ventricle. May 14th: the patient had been very much better for about a month. He had had occasional attacks of slight discomfort in the chest, which came on when he was lying in bed. They had been very mild. He was now able to get about without pain. The apex beat was in the fifth space just outside the mid-clavicular line. No adventitious sounds were heard: pulse 78, blood pressure 115/80.

The patient was discharged after having been in hospital a little less than two months.

Discussion

This case is reported owing to certain interesting features. (1) The age is very unusual. Though the clinical history and course were characteristic, the diagnosis of coronary thrombosis at the age of 24 might well cause doubt but for the electrocardiographic evidence. (2) Involuntary defaecation has been very rarely observed in cases of coronary thrombosis. (3) His mother died of a similar attack.

It would be interesting to hear the views of those with experience in this subject as to what the probable pathological cause was in a patient so young. Could excessive indulgence in athletics and games have produced degenerative changes in the coronary arteries at an early age? Could the mother's early death from what was perhaps an attack of coronary thrombosis be taken as evidence of a family tendency?

I wish to thank Dr. E. Garvin Mack, M.D., senior physician, General Hospital, Colombo, under whose care this patient was in hospital, for his kindness in asking me to report this case and for his encouragement; Dr. N. De S. Wijesekera, house-physician, for his full notes of the case; Professor F. O. B. Ellison for the electrocardiograms; and Mr. A. M. Mendis for a photographic copy of the electrocardiograms in series.

To perpetuate the memory of Professor A. Bostock Hill, the Empire Health Week Committee of the Royal Sanitary Institute, of which he was for many years chairman, offers a shield annually for the best celebration of health week in the Empire outside the British Isles. The programmes and reports of the competing centres for the 1934 competition have now been considered and the shield has been awarded to the city of Port-of-Spain, Trinidad.

Clinical Memoranda

Torsion of the Gall-bladder

This case occurred only a short while after the publication of three cases of torsion of the gall-bladder in the *British Journal of Surgery* for October, 1934, by Professor Rendle Short and Mr. Gordon Paul. It was very interesting to compare these cases, as there is considerable similarity in the stories. With these cases there was published a very full bibliography, to which I have nothing to add.

A married woman, aged 74, was admitted to University College Hospital, London, on November 8th, 1934, under Mr. A. J. Gardham, by whose kind permission this case is published. She was complaining of pain in the right hypochondrium of five days' duration and constipation of six days' duration. The onset of the pain was accompanied by the vomiting of a large amount of green fluid. The urine had been dark for the last few days. There had been no jaundice, and no vomiting after the onset of pain. There was a history of indigestion and of a "gastric ulcer" for some years. The night before admission an enema had been given, yielding a good result.

On admission the pain was radiating to the back, and there was soreness over the right side of the abdomen. The physical signs were: temperature, 99° F.; pulse, 112; respirations, 20; visible peristalsis from left to right across the umbilical area suggesting small intestine peristalsis; tenderness and rigidity in the right hypochondrium; and a hard, tender mass in the region of the right hypochondrium extending under the costal margin and moving on respiration. The bowels were opened, with a small normal result.

On the afternoon of the following day the patient looked ill, but not toxic as in complete obstruction. The abdomen was distended, and there was peristalsis as before; the lump in the right hypochondrium was clearly visible. There was no caecal distension. An enema was given with a good result, but constipated, and flatus was passed freely. In view of the absence of complete obstruction it was decided to wait another day to see if the general condition improved. Two days after admission the bowels had not been open, but flatus had been passed; the urine was still dark, and contained bile pigments.

At this stage three diagnoses were considered: (1) carcinoma of the hepatic flexure of the colon with obstruction; (2) acute cholecystitis; (3) carcinoma of the stomach with secondaries in the liver. The balance of probability was in favour of a carcinoma of the colon, but the absence of caecal distension was difficult to explain. The physical signs, together with distension and almost absolute constipation, were very suggestive of a big gall-bladder with a cholesterin stone impacted in the cystic duct, but there was no fever or spontaneous improvement over the two days. Carcinoma of the stomach was considered rather as a bad third. There was the history of indigestion and "gastric ulcer," and it was suggested that the peristalsis might be in the stomach, not the small intestine.

Operation

On November 10th, two days after admission and eight days from the commencement of symptoms, operation was performed. A long muscle-splitting incision parallel to the crest of the ilium was made, with the intention of doing a modified Paul's operation. On opening the peritoneal cavity blood-stained fluid escaped, and the lower pole of the gall-bladder appeared. It was black in colour, and, as the whole organ appeared in the incision, the fundus was seen to be twisted on the cystic duct three times in a clockwise direction. Reduction of the torsion occurred spontaneously. The gall-bladder was long and pyriform in shape. At its junction with the cystic duct it was attached to the lower surface of the liver by a short mesentery 1/4 in. deep along an area of not more than 1 in. Torsion had occurred at this site. The cystic duct and artery were divided between clamps in the usual way. The short mesentery was then divided between clamps and the gall-bladder removed. There was troublesome bleeding from the torn surface of the liver at the point of attachment of the mesentery, necessitating deep catgut sutures. The abdomen was closed with tube drainage from the region of the divided end of the cystic duct. The operation of removal of the gall-bladder in this case was unusually easy, with the important exception of the bleeding from the liver surface.

The tube was removed next day and the patient began a steady convalescence. On November 20th, exactly ten days after operation, a right femoral thrombosis occurred, followed by an effusion into the right knee-joint. A few days later there were symptoms and signs of a small embolus at the base of the right lung. Following this, recovery proceeded without further setback.

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Spontaneous Rupture of Oesophagus

The following account seems—apart from the unusual nature of the case—of sufficient interest to merit record.

Case Record

The patient, a colliery under-manager, aged 50 years, had had no previous ailments, and, as far as is known, was very temperate. He was inclined to be a vegetarian, due to some slight indigestion.

History of Present Affection.—The patient had his mid-day meal, at which time he was in his usual health. Shortly afterwards he felt giddy, went upstairs, and collapsed with a very severe pain in his chest. He called out, and neighbours came and put him to bed. His doctor was called, and found him in great pain, but was unable to detect any signs of a definite condition requiring operative treatment. Morphine was given hypodermically, and this was repeated when the patient was next seen. It was then noticed that his face was swelling. He was admitted to St. Helens Hospital at 10.30 p.m.

On admission the patient was very collapsed—temperature subnormal, pulse barely perceptible, sweating profusely, very cyanosed, respirations very shallow, rapid, and gasping. The face and neck and upper half of chest were very swollen. Surgical emphysema was well marked. Attempts to vomit were without result. Nothing abnormal could be made out in the abdomen. On thoracic examination the respirations were very rapid, the intercostal spaces on left side bulging—the chest being moved by accessory muscles of respiration—and surgical emphysema present over upper half of chest wall. The bases of both lungs were dull on percussion, most marked on left side. This dullness extended nearly to the apex on the left side. Vocal resonance was markedly decreased, especially on the left side. Breath sounds were absent on left side, except at the apex. On the right side they were greatly diminished at the base of the lung. Physical signs were somewhat masked by the presence of the extreme surgical emphysema. The patient died at 5 a.m. the next morning.

Post-mortem and Pathological Report.—Nothing abnormal was found in the abdomen, save that the left side of the diaphragm was bulging into the abdomen. On opening the thoracic cavity a large quantity of fluid was found. The left pleural cavity was completely filled with obvious intestinal contents—peas, potatoes, gravy, etc. No hard or bony substance was found. The fluid measured approximately one gallon. Both lungs were collapsed. There was a perforation of the parietal pleura on the left side of the mediastinum, about one and a half to two inches above the diaphragm. This led into a perforation of the oesophagus. The oesophagus was carefully dissected out in continuation with the stomach. A longitudinal perforation was found about one and a half inches above the cardiac orifice of the stomach. No foreign body, neoplasm, or ulcer was seen.

The pathological report stated: "The sections from the oesophagus show very definite recent inflammatory action in the walls, as evidenced by the presence of numbers of polynuclear and mononuclear cells between the muscle fibres, etc. There is also some evidence of necrosis, and there are numerous bacteria, the streptococcus being the principal organism. There is no doubt but that there has been an inflammatory focus, probably streptococcal in origin, in the wall of the oesophagus."

J. T. KYLE, F.R.C.S.Ed.
Surgeon, St. Helens Hospital.

Reviews

MATERNITY AND CHILD WELFARE

Dr. G. F. McCLEARY wrote, some time ago, a book on *The Early History of the Infant Welfare Movement*, which was noticed in the *Journal* of April 1st, 1933. He has now followed this up with a more comprehensive, but still relatively short, volume entitled *The Maternity and Child Welfare Movement*.[1] Some portion of the material contained in the earlier book is found also in this, but such repetition is kept in due proportion and relationship to the larger whole, and it is well to have a complete review of the history and present position of the movement while it can be given us by one who has been so honourably and intimately connected with it from its early stages. Dr. McCleary sets out its origins and its general progress till the end of the war. He then traces in turn the provision of health visitors, of maternity and child welfare centres, of ante-natal care, of infant life protection, and of midwives. There are chapters also on the unmarried mother, on the pre-school child, on maternal mortality and morbidity, and on general administration in relation to these subjects. Under each heading just tribute is paid to distinguished individuals and to bodies of persons who have been pioneers or prominent workers and influences in these fields. Among the former are Dr. Curgenven, Sir Arthur Newsholme, Dr. Ballantyne, Mr. Broadbent of Huddersfield, Professor Pierre Budin of Paris, Dr. Eric Pritchard, Margaret McMillan, and Ignaz Semmelweis of Vienna, whose work in relation to puerperal sepsis round about 1847 is perhaps not so well known and acknowledged as it should be. Sir James Simpson's work in connexion with anaesthetics during labour of course finds honourable mention, and attention is drawn to the beneficial influence of the British Medical Association in several directions, and to the series of articles in the *British Medical Journal* by Ernest Hart (Editor, 1867–98) on baby-farming, which focused the public mind to that matter.

Dr. McCleary's account of the struggle for the recognition of midwives is particularly interesting. This and his statement as to the present working of the Midwives Acts well illustrate the apprehensions and fears, not always without foundation, which new public health activities are apt to excite in the minds of the medical profession and of others, and the importance which should always be attached to the fullest consultation by those responsible for health legislation with those who must necessarily be actively engaged in and affected by the proposed activities. Dr. McCleary's book is full, accurate, clear, and fair, and helps the reader to achieve that historic perspective which is of such value in the understanding of present-day situations and movements.

EXPERIMENTAL NERVE SUTURE

Sir CHARLES BALLANCE's brochure on the fate of the peripheral segment of a divided nerve when sutured to the central segment of another nerve[2] records the results of experiments which were carried out at the Research Laboratories of the Royal College of Surgeons. The operations consisted in the section of two more or less adjacent nerves, followed by the suture of the central segment of one to the peripheral segment of the other. The observations concern the immediate and subsequent tissue changes occurring in the peripheral segment, and the functional condition of the operated nerves as shown by local and central stimulation. No true union or anastomosis of nerve fibres occurs at the site of suture. The axis cylinders and myelin sheaths of the peripheral segment rapidly degenerate and disappear, the change being associated with an influx of leucocytes. While the process of cicatrization is proceeding at the site of suture a histological change of the nature of a partial regeneration takes place in the peripheral segment. The tissue of this segment exhibits an abundant new formation and proliferation of neurilemma cells, which with their long processes arrange themselves in the lines of the old sheaths. When this change is complete a microscopical section of the segment shows its main bulk to consist of a newly formed tissue composed of closely placed parallel lines of neurilemma cells running longitudinally in the segment. The divided nerves of the central segment form a delicate plexus in the scar-tissue at the site of suture, and their axons, coming under the directive influence of the new tissue of the peripheral segment, advance into the latter and restore the function of the nerve. The process is shown very clearly in those experiments in which a large-fibred nerve (hypoglossal) is sutured to a fine-fibred nerve (sympathetic) as peripheral segment. The latter becomes visibly increased in thickness by the ingrowth of hypoglossal fibres, and microscopically its small sympathetic fibres are found to be replaced by fibres of large size.

The changes mentioned are beautifully illustrated by numerous figures accompanying the text. The author discusses some interesting problems arising from the altered central relations of the operated nerves, and also concerning their relation to the muscle plates in those experiments in which the peripheral segment is a motor nerve.

AMOEBIASIS

The appearance of the book *Amebiasis and Amebic Dysentery*,[3] by CHARLES F. CRAIG, professor of tropical medicine in Tulane University, is a reminder that during the past year amoebic dysentery has attracted considerable attention in the United States, owing to the occurrence of a number of cases in Chicago last year, and the subsequent discovery that amoebic infections are fairly widespread throughout the country. Physicians who have little knowledge of the disease are encountering it, and it is to help them that the book has primarily been written.

The author himself has had many years' experience of amoebiasis of man in various parts of the world, has made many original observations on the subject, and is known to hold sound views regarding the various conditions caused by the pathogenic amoeba of man, *Entamoeba histolytica*. His book deals with the subject in a clear, concise, and practical manner, and gives at the same time sufficient historical data to enable the reader to understand the stages by which knowledge has been acquired. To the author the symptomless carrier does not exist, for it is his opinion, which is shared by most authorities on the subject, that infection with the amoeba means definitely intestinal ulceration, the signs of which are often obscure, but can be detected by careful examination. He does not believe that *Entamoeba histolytica* can live as a harmless saprophyte in the bowel, as do the various non-pathogenic amoebae of men. On the question of the dissemination of the disease, the view is expressed that, though cases generally occur sporadically, veritable epidemics, such as the one the author and others

[1] *The Maternity and Child Welfare Movement*. By G. F. McCleary, M.D., D.P.H. London: P. S. King and Son, Ltd. 1935. (Pp. 227. 7s. 6d. net.)

[2] *The Conduct and Fate of the Peripheral Segment of a Divided Nerve in the Cervical Region when United by Suture to the Central Segment of another Divided Nerve*. By Sir Charles Ballance. London: Macmillan and Co., Ltd. 1934. (Pp. 45; 59 figures. 7s. 6d. net.)

[3] *Amebiasis and Amebic Dysentery*. By Charles F. Craig, M.D., F.A.C.P., F.A.C.S. London: Baillière, Tindall and Cox. 1935. (Pp. 315; 54 figures. 22s. 6d.)

believe to have occurred in Chicago, do break out when gross pollution of drinking-water with sewage occurs. The general subjects of aetiology, pathology, symptomatology, diagnosis, and treatment are fully and accurately discussed. Particular attention is given to the author's method of carrying out the complement-fixation test in amoebiasis, the description of which will be particularly useful to laboratory workers.

The book is undoubtedly a good one, and can with confidence be accepted as giving a reliable account of the modern conceptions regarding amoebiasis in all its aspects. It is sufficiently illustrated with excellent photomicrographs and a number of line drawings, is well produced, and can be thoroughly recommended to those who seek up-to-date information on the subject, which is one of world-wide importance.

PRIMITIVE SOCIETY AND ITS VITAL STATISTICS

The choice of this striking title for his work[4] has its origin in the belief that, when studying primitive communities, their vital statistics should receive careful consideration ; for in his preface, Dr. L. KRZYWICKI says, "If we are properly to realize the extent, scope, and application of primitive customs and institutions, it is indispensable to estimate their weight—that is, to consider them in connexion with the number of persons who come under their influence." To this end the author sets himself an ambitious and difficult task, the results of which are embodied in a book of upwards of 500 closely printed pages, of which approximately 250 are devoted to appendices and bibliography. Here are to be found discussions of such matters as primitive peoples in relation to their social isolation, size of tribes, problems of depopulation, the fertility of women in primitive communities, and the extreme variety of primitive customs arising from natural environment and other influences, as, for example, the fluidity of land tenure systems, etc.

The underlying ideas and beliefs which inspired this study are admirable, though the choice of material adduced in support of the author's contentions and conclusions may be regarded as inadequate justification for a title so prodigal in its promise of providing something entirely new in the field of ethnological and anthropological research. Certainly vital statistics are indispensable to the sound apprehension of the complex interacting forces influencing human life, yet Dr. Krzywicki's contribution scarcely fulfils the high hopes promised by the title of his book, perhaps by reason of the fact that he appears to have disregarded the injunction of Quetelet, who, a century ago, laid it down that "statistics are only of value according to their exactness, for without this essential they become useless and even dangerous, since they conduce to error." It is by no means easy, even in these days, to formulate precise theories and to reach exact conclusions when research is concerned with human entities. Theoretically, the counting of a people should be a comparatively easy matter—practically, it is a task almost humanly impossible ; as to other data, even after a century's practical experience, records of the vital facts of human life among civilized communities can scarcely be regarded as dependable in many instances, while present-day workers engaged in endeavouring to secure vital records of backward and primitive peoples constantly remind us that, in spite of their best efforts, the scanty data they have been able to collect provide inadequate bases for the establishment of general conclusions, or for studying the extent and effects of various native customs upon the lives of a people.

It is to be feared that but little reliance may be placed upon the majority of the data quoted by Dr. Krzywicki, who admits that "the existing numerical data on primitive communities are of very doubtful value," based in the main upon the reports of travellers and casual observers who "with but few exceptions were fundamentally far from any scientific interest in the phenomena observed by them," or who "repeated former estimates or furnished often fantastic data not based upon any direct contact." They were, in fact, and for the greater part, nothing more than conjectural estimates, and as such can have little scientific significance. It is beside the point for the author to explain that, by reason of the fragmentary and doubtful material at his disposal, he was "obliged to make use of rough-and-ready methods of reckoning," or to confess that the work is not a "sufficiently exact depiction from the statistical point of view of the primitive community," for it must be clear that whatever methods were applied to the data the final results could not be other than suspect if based upon incomplete and unreliable facts.

It would have been a distinct advantage if the author had indicated among which people, when, and for what period of time he had been personally engaged in assembling vital facts, and which arrays of facts in his book were the result of his own inquiries. There is a curious absence of reference to any *personal* field experience in this work ; on the other hand, with prodigious zeal the author appears to have collected from the works of other writers every passage which has a bearing upon his thesis, selecting what seems to him most worthy of recital, and uniting a variety of views and experiences by personal embellishments of a literary character. Furthermore, the exhaustive bibliography not only provides a key to quotations included in the text, but supplies what may be regarded as a valuable guide-map of the extensive ethnological and anthropological country which the reader may traverse in company with the author.

CHEMICAL WARFARE

Chemical Warfare and its Effects (*L'Arme Chimique et ses Blessures*), by Professors HEDERER and ISTIN, provides a general study of the nature and actions of poison gases. The most noteworthy point about this book is its size, for it is an octavo volume of 676 pages, with 137 illustrations. No work of this magnitude has previously appeared on this subject, and indeed the paucity of the information hitherto available has often been remarked upon. The authors treat their material in a systematic and scientific manner. The first part of the volume deals with theoretical toxicology—that is to say, the laws determining the rate of destruction of living organisms by poisons ; the second part with the various classes of poison gas, their mode of action, and the physiology of the organs and structures chiefly affected. The gases are classified according to their mode of action—that is, lachrymatory, vesicant, asphyxiating, etc. The final part deals with the physics of gas clouds and with the methods available for protecting populations against gas attacks. The detailed nature of the book may be judged from the fact that sixteen pages are devoted to the mode of action of lewisite (geranium gas), a subject concerning which very little has been published hitherto. The authors remark: "We believe that lewisite opens new vistas. It is intermediate between the gases used in the last war and those which the next war will reveal or perfect." In their conclusion the authors say that their

[4] *Primitive Society and its Vital Statistics.* By Ludwik Krzywicki, Ph.D. London: Macmillan and Co. Ltd. 1934. (Pp. 589. 20s. net.)

[5] *L'Arme Chimique et ses Blessures. Étude Générale sur les Gaz de Guerre.* By Professors C. Hederer and Marc Istin. Paris: J. B. Baillière et Fils. 1935. (Pp. 700. 125 fr.)

aim is to provide the public with accurate information on the possibilities and limitations of gas warfare in the hope of discouraging panic and of encouraging rational measures for defence. In general, the volume has been written in a careful and objective manner, and contains a far more complete and systematic description of the subject than does any other work with which the reviewer is acquainted.

Notes on Books

The second edition of Directions for the Diet of Healthy and Sick Children,[6] by Professor E. ROMINGER and Dr. E. LORENZ, represents a complete revision and considerable expansion of the previous booklet. The result is still a small volume of just over a hundred pages, and it remains a valuable collection of recipes and diet sheets, limited in its appeal to English readers by virtue of the metric system and the foreign articles of food employed.

In announcing the fifth edition of *Nursing Homes*[7] the publishers state that the number of entries has been increased to approximately 3,500, and that all entries have been subjected to thorough revision. For easier reference the lists for Scotland and Wales have been rearranged in alphabetical order of the town in which the nursing home is situated.

In the work entitled *A Scientist in the Early Republic*[8] Mr. COURTNEY ROBERT HALL gives an interesting and sympathetic account of the life and work of Samuel Latham Mitchill, who is described as " the most versatile, the most energetic, and the most ingeniously wise " of all the men who laid the foundations of scientific America. In addition to his activities as a physician, which included his work as pathologist, sanitary chemist, and surgeon-general of militia, as well as his hospital and private practice, he was a pioneer in geology and palaeontology, botany, zoology, and an energetic and efficient legislator. Mitchill also deserves to be known as the founder and editor of the *Medical Repository*, the first medical journal to be published in the United States, and as the founder of the New York Lyceum, which subsequently became the American Museum of Natural History. A bibliography of his writings and a list of the forty-nine societies, medical and other, to which he belonged are appended.

The Prince of Wales has twice been to East Africa, paying an official visit to Kenya Colony and Uganda in 1928, and in 1930 making his way from Capetown to Port Said on a more sporting trip, following up and photographing, and on occasion shooting, big game of all sorts *en route* in Kenya, Uganda, and the Belgian Congo for the most part. The book *Sport and Travel in East Africa*,[9] based on the diaries kept by His Royal Highness, gives a running and most readable account of the adventures, experiences, and labours of the several safaris on which he went in Africa. Quite apart from its incidental dangers, which cannot be foreseen and must be met as they arise, the hunting of big game with rifle or camera is a most arduous pursuit ; the book gives ample evidence of the Prince's eagerness and courage, and of the endurance with which he met the long hours of heavy physical exertion involved in the study of big game at home in its natural surroundings, and the sudden emergencies that inevitably arise from time to time when big game is alarmed. The social side of His Royal Highness's life in East Africa is admirably portrayed, and the reader is filled with admiration again and again for the keenness and quick interest with which he seized on the countless opportunities for social contacts that all Africa affords. Full credit is given to the many white hunters, game wardens, and sportsmen who shared the pains and pleasures of his various expeditions, and in particular a chapter is devoted to the maxims of the late Denys Finch-Hatton, that prince of good companions and shikaris, who was in charge of the Prince so often on safari. The book is well written and full of interest from end to end, and the author is to be congratulated on the skill with which he has made use of his material ; the illustrations, too, are excellent.

[6] *Richtlinien für die Kost des gesunden und Kranken Kindes.* By Professor Dr. Erich Rominger and Privatdozent Dr. Ernst Lorenz. Second edition. Berlin: Julius Springer. 1935. (Pp. 130. RM. 4.50.)

[7] London: Benn Brothers, Ltd. 1935. (Pp. 268. 4s. post free.)

[8] *A Scientist in the Early Republic. Samuel Latham Mitchill, 1764–1831.* By Courtney Robert Hall. New York: Columbia University Press ; London: H. Milford, Oxford University Press. 1934. (Pp. x + 162. 12s. 6d. net.)

[9] *Sport and Travel in East Africa, 1928 and 1930.* Compiled from the private diaries of H.R.H. The Prince of Wales by Patrick R. Chalmers. With 3 maps and 37 photographic reproductions taken by H.R.H. and others. London: Philip Allan. 1934. (12s. 6d. net.)

Preparations and Appliances

" EVIPAN SODIUM " CASE

Dr. J. R. HAMERTON (Herne Bay) writes: It occurred to me, as a regular user of evipan sodium in suitable cases, that a small box to hold all the things necessary for the administration of this drug would be very useful. As an anaesthetic evipan sodium is particularly valuable when repairing the injuries of parturition, in which cases it is often difficult and inconvenient readily to secure the services of an anaesthetist. I have had made, at very reasonable cost, by the Medical Supply Association of Gray's Inn Road, London, W.C.2, such a case, which serves my purpose admirably. It is a metal box, 6 by 4 by 1¼ inches, partitioned within to take a 10 c.cm. Record syringe and needles, two ampoules of sodium evipan powder, and two ampoules of the requisite distilled water, an ampoule or two of icoral, a one-ounce bottle of spirit (for sterilizing purposes), and a Canti's tourniquet. The whole case is very neatly made and finished, and takes up but little space in one's bag, or, with very little damage to one's clothes, slips quite comfortably into the pocket.

OLEOCHRYSINE

Oleochrysine Lumière (Anglo-French Drug Co.) is an oily suspension of calcium auro-thioglyceryl sulphonate. The gold content of the salt is 35 per cent. The preparation is given intramuscularly. The makers claim that the drug is of low toxicity, that it has a higher curative index than other gold preparations, and that the presence of calcium in the compound decreases the chance of intolerance phenomena. The drug is recommended for various skin conditions such as lupus erythematosus, for pulmonary tuberculosis, and for chronic infective polyarthritis.

A STABLE CHOLINE DERIVATIVE

Doryl " Merck " (carbaminoylcholine chloride) is an exceptionally stable choline derivative. Pharmacological research revealed remarkable properties in acetylcholine, but the clinical application of this drug was hampered by its instability, which caused it to produce very uncertain effects when given hypodermically. Doryl " Merck " has the same action as acetylcholine, in that it is a general stimulant of the parasympathetic nerve endings. Its stability is such that it can even be taken by mouth (1 to 4 mg.), although it is better to give it hypodermically (1/4 mg.) Some of the actions of this drug are that it lowers blood pressure, increases the peristaltic activities of the gut, and lowers intraocular tension ; hence it obviously has a wide range of possible therapeutic applications.

LIVER EXTRACT WITH IRON

Ferro-" hepamult " (H. R. Napp Ltd.) is a combination of liver extract and iron. One measureful (12 grams) of the product contains the equivalent of 8 oz. of fresh liver and 1.7 gram of iron. The mixture is intended for treatment of certain conditions, such as the anaemia of pregnancy, in which it appears that a combination of liver and iron gives more favourable results than iron alone.

POST-GRADUATE COURSES FOR SHIP SURGEONS

[FROM A CORRESPONDENT]

The opinion of the Committee set up by the Ministry of Health in 1925, whose report appeared in 1930, was decisive as to the obligation for extending facilities for post-graduate education to all general practitioners. For those settled in the country the need for revision, especially in relation to the ever-recurring problems in their daily rounds, appeared especially urgent. Their comparative isolation and small opportunity for intercourse demanded particular sympathy and consideration.

The arguments adduced as to the value of such facilities for the country practitioner apply with even greater force to the needs of the ship surgeon. The far greater isolation, the still rarer contact with colleagues, the impracticability of discussing, in a friendly way over the telephone, a difficult case, and, more than all, that rather desperate feeling that must come occasionally to every sincere surgeon of being unable to share responsibility with another colleague or consultant, all present overwhelming reasons for assisting him in every possible way.

There is no need to reiterate the very many cogent reasons why the British Medical Association should consider it a duty to espouse the cause of the surgeons of our Mercantile Marine. It is humiliating to confess that the requirement of post-graduate education for ship surgeons was not inaugurated in this country. Attention, in fact, was called to its pressing importance and practical feasibility by the action of our neighbours with Mercantile Marines insignificant compared with our own. Italy, France, and Spain were all determined to raise the status and dignity of the medical arm of their Mercantile Marine. Their experience with the type of old-time applicants was probably more unfortunate than our own, and their consequent demand for a diploma in subjects directly relating to the profession of ship surgeon was not more unreasonable than the requirement that is now being made for the special public medical services in this country. The qualifying subjects were: epidemiology, marine hygiene, sanitary legislation, general clinical medicine, traumatology, foreign languages, about all of whose value there can be no doubt.

The British Medical Association Committee carefully considered the question of a diploma, and came to the conclusion that this was entirely impracticable for a Mercantile Service of the size and peculiar nature of our own. The employment of ship surgeons is, for the large majority of ships, seasonal or casual, and the supply of applicants who are prepared to take a casual trip would cease at once if a diploma was required of them.

No possible objection can be raised against the study of these subjects in organized courses, since it is too much to expect, with his many duties, the ship surgeon to keep abreast with the times by a perusal merely of medical textbooks and journals. There is no useful alternative to such a project if a man is to be made more competent for surgical emergencies, when and when not to operate, when to postpone until the patient is safely ashore; for the better treatment of fractures and the prevention of protracted disability; for the expediting of movement at quarantine; for the differential diagnosis of tropical disorders; for the clinical discrimination of the spurious from the genuine claim in respect of injury; and for dealing with special problems of hygiene encountered on board ship.

Competence in these matters is an unquestionable asset to the business or financial aspect of shipping. The expense entailed by delay of movement at quarantine, by excessive periods of weekly compensation, by the satisfaction of unnecessary claims, was previously regarded as an inevitable part of overhead charges. The more enlightened companies are now, however, realizing their asset in a ship surgeon who is adequately equipped for these problems.

VALUE OF SPECIAL COURSES

The British Medical Association enlisted the interest of the Greenwich Seamen's Hospital Society, whose resources in the London School of Hygiene, the Tropical School of Medicine, and the Dreadnought Hospital were at once placed at the disposal of the ship surgeon.

The surgeons who have attended these courses were pleasantly surprised to find that every possible forethought had been given to their special problems. These *ad hoc* courses were, moreover, a real saving of time compared with their previous experience of "walking the hospitals" or attending the ordinary post-graduate courses, however admirable.

Despite this acknowledged success there is every prospect, as our correspondents deplore, that unless better support is forthcoming the scheme may fall through. That is emphatically not due to the indifference of the ship surgeon. He is ready and willing to take every advantage of these admirable facilities, but he must be relieved of any financial anxiety.

DUTY OF THE SHIPPING COMPANIES

The profession of ship surgeon may be described as a vocation—men are drawn to it through a genuine love of the life at sea and not because of its remuneration. The modern applicant is well qualified, and is now, in certain companies, required to have held house appointments in teaching or well-known hospitals. His salary as a senior ship surgeon does not usually exceed £500; in addition there are fees, almost negligible in these depressed times, and only when a bachelor is his maintenance on board of any consequence. He has, of course, no overhead charges; nevertheless, all things considered, the total emoluments are hardly a recompense for the years of study and an expensive education. Is it not unfair to expect that he shall go off pay when the instruction he receives is of direct economical advantage to his shipping company?

If shipping companies are reluctant to let their surgeons take advantage of these educational facilities it must be for one of two reasons. Either they are uninformed of the favourable bearing that a more efficient medical service has on the financial aspect of this great business or else the difficulties attendant on arranging coincidental leave appear insuperable.

The medical departments are occasionally and unfortunately in the hands of officials who are not medical officers, and who consequently are not really competent to estimate the value of medical service on board ship. Enlightenment can only come to them through their officials' organizations. When, however, the difficulties arise, not from ignorance, but from internal difficulties of organization, especially where surgeons are on long-term voyages, then admittedly a great deal of forethought and preparation is necessary for their release. That that is not insuperable is borne out by the fact that the surgeons even in these companies have taken advantage occasionally of these courses. What is, however, needed to make the scheme a permanent success is that each company employing permanent surgeons will see to it that one or more surgeons are available *every* year. If a concerted action is then made by the respective officials in charge of medical departments, then a number will be set free each year to justify the labour that these courses entail.

The only remaining problem that confronts the organizers of these courses is to enlist the sympathy and co-operation of the shipping federations and associations and to call an annual meeting of the officials in charge of medical departments to arrange study leave for their surgeons at their mutual convenience.

The fiftieth anniversary of the foundation of Evangelismos Hospital of Athens, the largest and best-known medical institute in Greece, was recently celebrated in the presence of the Greek President, many of the Ministers, and the physicians of Athens.

THE KING'S SILVER JUBILEE

Loyal Address from the British Medical Association

In the right-hand column below we reproduce a photograph of the Loyal Address which has been presented this week to the King on the occasion of His Majesty's Silver Jubilee on Monday, May 6th. The address is inscribed and illuminated in burnished gold and colours on a vellum scroll wound round an ivory rod. It bears the signatures of the President, Dr. S. Watson Smith ; the Chairman of the Representative Body, Mr. H. S. Souttar ; the Chairman of Council, Dr. E. Kaye Le Fleming ; and the Treasurer, Mr. N. Bishop Harman. Our illustration shows the scroll unrolled, and beside it the cylindrical case, which bears the Association's device at one end. The text of the address is as follows:

TO THE KING'S MOST EXCELLENT MAJESTY.

MAY IT PLEASE YOUR MAJESTY—As President, Office Bearers and Council of the British Medical Association, and on behalf of the thirty-five thousand members of the Association engaged in the study and practice of medicine in the United Kingdom and in other parts of the British Empire, we desire to offer to Your Majesty a message of loyal congratulation on the twenty-fifth anniversary of Your Majesty's Reign and an assurance of our sincere devotion to Your Majesty's Throne and Person.

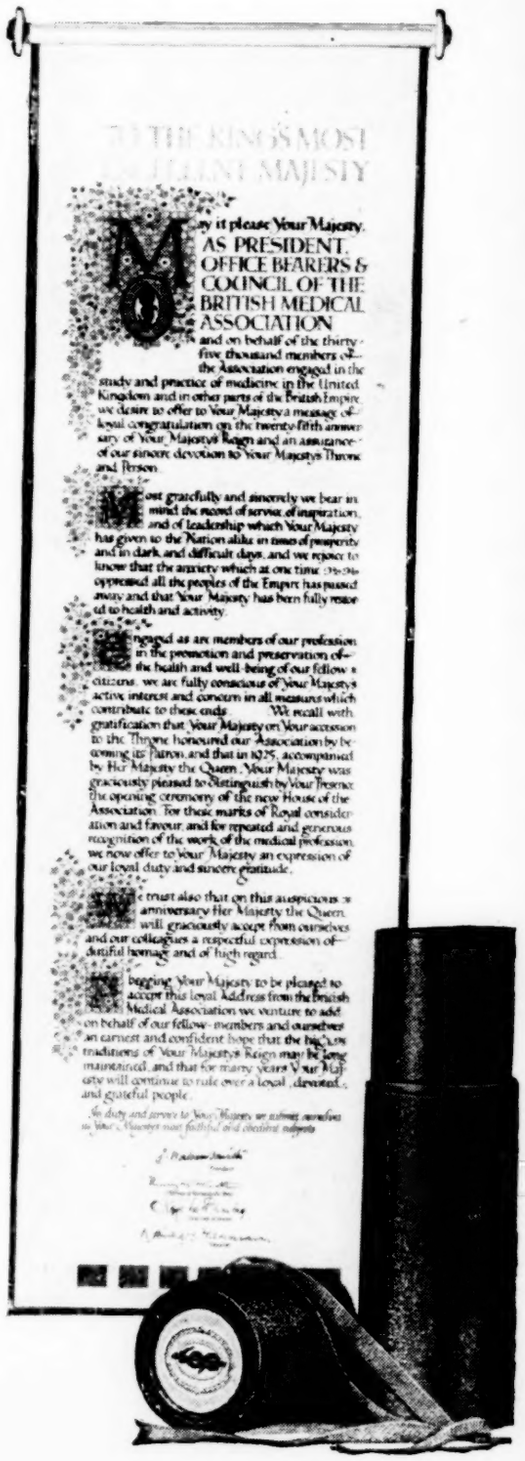
Most gratefully and sincerely we bear in mind the record of service, of inspiration, and of leadership which Your Majesty has given to the Nation alike in times of prosperity and in dark and difficult days, and we rejoice to know that the anxiety which at one time oppressed all the peoples of the Empire has passed away and that Your Majesty has been fully restored to health and activity.

Engaged as are members of our profession in the promotion and preservation of the health and well-being of our fellow citizens, we are fully conscious of Your Majesty's active interest and concern in all measures which contribute to these ends. We recall with gratification that Your Majesty on Your accession to the Throne honoured our Association by becoming its Patron, and that in 1925, accompanied by Her Majesty the Queen, Your Majesty was graciously pleased to distinguish by Your Presence the opening ceremony of the new House of the Association. For these marks of Royal consideration and favour, and for repeated and generous recognition of the work of the medical profession, we offer to Your Majesty an expression of our loyal duty and sincere gratitude.

We trust also that on this auspicious anniversary Her Majesty the Queen will graciously accept from ourselves and our colleagues a respectful expression of dutiful homage and of high regard.

In begging Your Majesty to be pleased to accept this loyal Address from the British Medical Association we venture to add on behalf of our fellow-members and ourselves an earnest and confident hope that the high traditions of Your Majesty's Reign may be long maintained, and that for many years Your Majesty will continue to rule over a loyal, devoted, and grateful people.

In duty and service to Your Majesty we submit ourselves as Your Majesty's most faithful and obedient subjects.



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SATURDAY, MAY 11th, 1935

BIOLOGICAL EFFECTS OF THYMUS EXTRACTS

The outstanding physiological feature of the thymus gland is its growth during youth and its involution at puberty. Numerous researches have been directed towards elucidating the relation between the thymus and growth and the sexual apparatus, but a review of the literature shows little harmony in the views of different workers. In the quest for active extracts of this gland some report a stimulation of growth in tissue cultures, others describe depressor substances and a stimulation of the virgin uterus. Asher in 1930 described a favourable effect of the alcohol-soluble material from the thymus on muscle fatigue, and a stimulant action of the water-soluble fraction of the alcohol-insoluble material on the growth and sexual organs of rats. Castration was found by other investigators to lead to a hyperplasia of the thymus, and thymus feeding was said to produce a diminution in size of the testes. Transplantation of ovaries is reported to diminish the size of the thymus. The whole problem is an obscure one, and it cannot be said that clear and unequivocal evidence is extant in demonstration of any specific effect of the thymus or of a definite internal secretion. Even extirpation of this gland has not yielded the guiding phenomena which have with other glands so often led to fruitful results. American workers have found that extirpation of the thymus in dogs leads to disturbance neither in growth nor in intelligence. Disturbances of growth have been described in fowls, guinea-pigs, and rats following extirpation, but an equal number of workers have failed to substantiate this.

Some very promising results have recently been obtained by a group of American investigators (L. G. Rowntree, J. W. Clark, and A. M. Hanson,[1]) who worked with an extract of calves' thymus prepared by A. M. Hanson. It was prepared by extraction of the thymus glands of these animals (2 to 6 weeks old) with 0.5 per cent. HCl in the hot. The extract thus obtained is very stable, and is effective even after being kept at room temperature for two to three years: it is golden yellow in colour, and resembles bouillon in taste and smell. The *p*H of the extract is about 5, and it is non-toxic in relatively large doses, producing no local irritation. In a series of very carefully controlled experiments with rats these authors studied the effects of daily intraperitoneal injections of 1 c.cm. of this extract both on the growth of the original series taken and on the offspring, which were also injected daily, starting from the sixteenth to twentieth day after birth. The first generation was continuously injected from this time up to maturity, and then during pregnancy and lactation, and so on for the second, third, and fourth generations. The size of the litters, their average weight, and the time of appearance of important events, such as opening of the ears and eyes, eruption of teeth, appearance of hair, descent of testes, and opening of vagina, were noted and compared with similar observations on controls. The effects of this treatment were mainly manifested by a remarkable acceleration of development of the young animals, which, in the fifth generation, was described as "almost beyond belief."

Some idea of the effects produced will best be obtained by presenting a few figures given by these workers. The average birth weight of the control rats was 4.6 grams, the ears open after two or three days, teeth erupt about the ninth day, hair appears between the twelfth and sixteenth days, the eyes open about the fifteenth or sixteenth day, the testes descend after thirty-five to forty days, and the vagina opens after fifty-five or sixty days. In the offspring of the thymus-treated rats (themselves also treated) all these periods of appearance of important physiological events were diminished, and the diminution was greater in each succeeding generation, until in the fifth generation the following figures were recorded: ears open, 1 day; teeth erupt, 1 day; hair appears, 2 to 3 days; eyes open, 2 to 3 days; testes descend, 4 to 5 days; vagina opens, 18 to 19 days. The birth weight was 5.6 grams. The effect is not so marked in the earlier generations, but it is well established in the fourth and fifth. The rate of growth is much accelerated; the young mature much earlier and breed in some cases on the fortieth day of life. That the milk of the mother (treated with extract) is not important was shown by suckling the young with a control female and by suckling control litters with a treated mother. If the extract is stopped for one generation the effect almost disappears. Whether the effects can be produced by oral administration is as yet doubtful. The effect on the parents is not very marked, as might be expected from the findings of many other workers. The history of the treated litters after the adult stage has been reached is not significantly different from that of the adult animals. The effect may be summed up as an excitation of the processes of maturation of the individual. With the crude extracts at present being used by these workers it is not surprising that the effect should be postponed for some generations, and we have little doubt that increased purification will produce increased efficacy in the earlier generations. The researches are in their early stages, but it is apparent that at last an important step has been taken towards elucidation of the thymus problem.

[1] *Journ. Amer. Med. Assoc.*, November 10th, 1934.

ELEVEN YEARS' WORK ON ANAESTHETICS

In 1924 a joint committee representing the Royal Society of Medicine and the Medical Research Council was established, with the immediate view of investigating the purity of nitrous oxide, which was at that time being called in question ; but it continued and extended its labours to cover the whole field of anaesthetics. A retrospect of its eleven years' work was given to the Section of Anaesthetics of the Royal Society of Medicine on May 3rd by Dr. Charles F. Hadfield, who has been from the first a member of the committee and its honorary secretary. The other original members on the Royal Society of Medicine side remaining are Dr. Blomfield and Sir Francis Shipway, and on the Medical Research Council side, Sir Henry Dale and Professor Donnan. The committee has lost by death Professors Pembrey, W. E. Dixon, and Storm van Leeuwen, who was a corresponding member, and has appointed Professor Pannett and Mr. Spurrell. One of the early pieces of work to which it applied itself was to determine whether a specially purified ether for anaesthesia made from ethyl alcohol could be placed more economically at the disposal of anaesthetists. Several firms suggested that they would prefer to make " ethyl ether " at a price comparable with that of methylated ether if allowed to use a suitable denatured duty-free ethyl alcohol, and negotiations were started which resulted in a grant of facilities to all firms, under certain conditions, by the Board of Customs and Excise. The committee, as Dr. Hadfield told his audience, has also interested itself in the prevention and treatment of ether convulsions—a subject often discussed in our correspondence columns—but nothing of a very practical kind has yet emerged. Such cases, though rare, are thought to occur with all methods of ether anaesthesia. Animal experiment has been suggested, but there is no evidence that the condition is met with in animals, so that not only is the problem of ether convulsions unsolved, but the committee is without any reasonable plan for investigating it further.

Attention was drawn by Dr. Hadfield to the stringent standards laid down for ether in the current *British Pharmacopoeia*—standards in part due to the work of the committee in investigating impurities, and particularly in securing facilities for duty-free ethyl alcohol. The advice of the committee was sought by the Pharmacopoeia Commission, and on its recommendation nitrous oxide and other gases were included in the 1932 edition. The desirability of including in a future edition the numerous basal anaesthetics and other similar bodies was obvious, but the difficulty was that nearly all of them appeared under trade names. In 1925 the attention of the committee was drawn to an anaesthetic explosion which had taken place at a London hospital, and as a result it was made plain that under suitable conditions nitrous oxide would support combustion as actively as oxygen—an observation of great importance to anaesthetists, who otherwise might regard nitrous oxide as an inert, essentially safe gas so far as explosion risk was concerned. In the presence of other inflammable vapours, however, it was shown that nitrous oxide would supply all the oxygen necessary for ignition in the accidental presence of a spark or flame. The committee took part also in a conference following another London hospital explosion last autumn, when the view was expressed that although in this country anaesthetic explosions had been few, there was an element of good fortune in this circumstance, and that such immunity must not always be expected.

Dr. Hadfield related the work done by the committee on several promising anaesthetic agents from time to time, the use of which, however, proved to be attended by too great dangers or technical difficulties. Among others investigated were dimethyl ether, cyclohexine, propylene, and butylene. Within the last year the committee had interested itself in cyclopropane, which was already established as a potent anaesthetic agent in the United States, although even there only manufactured on what was termed an experimental basis. He believed that negotiations which had been taking place with a certain firm would issue in the erection of a small plant in this country for the commercial manufacture of cyclopropane. Since 1927 the committee had been approached from time to time by foreign manufacturers with a view to testing particular products and approving their use in Great Britain. The first of these was avertin, originating in Germany, which had now come into general use. Evipan was the second new product to be tested out, and since the favourable report upon it, it had been well received. The last new anaesthetic was vinethene,[1] and arrangements might be made for its manufacture in this country under licence so as to avoid the rather heavy customs charges. In July, 1932, an anonymous testator left a considerable sum for research in anaesthesia and analgesia, and the committee was asked for suggestions as to the best use of the money. It proved to be exceedingly difficult to choose a suitable subject, but finally it was decided to recommend that the grant should be devoted to an investigation of the effect of anaesthesia on the functional condition of the kidney, the investigator to pay attention first to avertin, and later to the after-effects of prolonged anaesthesia. Dr. N. E. Pitts has been appointed to undertake the work in the physiological department of Guy's Hospital, and interim reports have been submitted from time to time. In conclusion Dr. Hadfield said that when he undertook this review he thought his task would be an easy one, but in fact it proved to be difficult and onerous. Although all the material had passed through his own hands, he was surprised to find how much of it there was. He acknowledged the great help afforded by Dr. Harold King of the National Institute of Medical Research, who, though not a member of the committee, had carried out important chemical investigations on its behalf.

[1] "Vinethene." By Sir Francis Shipway. *British Medical Journal*, January 12th, 1935, p. 70.

CARDIAC COMPLICATIONS IN DIABETES

For many decades the rigid dieting of elderly diabetics has been regarded as inadvisable. Within a year or two of the discovery of insulin the reports of sudden death following its use in diabetics who also suffered from heart disease endorsed the therapeutic caution of the earlier physicians. In more recent years the circulatory factors concerned in the development of diabetic coma have received considerable attention, and emphasis has been laid also on the intensity of the arterial disease that so constantly accompanies diabetes of some years' standing. In a study of heart disease in relation to diabetes, A. Clerc[1] has made an analysis under the following categories: cardiopathies developing in the course of diabetes and depending in some measure on its existence; special cardiac syndromes, pathognomonic of diabetes, and often ushering in a fatal termination; and complications of cardiac origin referable to the use of insulin. The first group merits less attention than the last two, and the diagnosis and treatment depend upon the nature of the cardiovascular lesions. To the second group belongs a form of cardiac collapse first described by Frerichs,[2] in which prostration is associated with lowering of the blood pressure and a slowing of the peripheral circulation; no true coma sets in, the patient often has no acidosis or respiratory arrhythmia, and yet a fatal termination is very frequent if suitable treatment is not forthcoming. The circulatory embarrassment seen in true diabetic coma also belongs to this category, and certain mixed forms occur. The third group (cardiac syndromes developing in the course of insulin therapy) comprises angina pectoris, described by Parsonnet and Hyman[3] as "insulin angina," heart failure, and insulin shock. Experimental and clinical work have shown no evidence of a direct harmful effect of insulin upon the heart whether in the healthy or in the diabetic. On the other hand, it would seem that hypoglycaemia and other derangements brought about by insulin may cause excessive interference with carbohydrate metabolism in a heart in which the nutrition is already deficient. The prognosis of cardiac complications associated with insulin therapy, or those depending on circulatory collapse with or without acidosis, is always problematic and usually grave. The risks attaching to insulin therapy when heart disease exists may be minimized by the initial use of small doses, the very gradual increase of dosage, and the frequent assessment of the condition of the patient by observations of the blood pressure, pulse rate, blood sugar, and electrocardiogram. Should symptoms appear they may usually be remedied by the administration of sugar by mouth, or in more obstinate cases intravenous injection of 20 c.cm. of 50 per cent. dextrose solution. For the treatment of cardiac collapse (Frerichs's type) Clerc advises the intravenous injection of strophanthin or coramine and adrenaline; to combat dehydration a slow intravenous injection of saline, about one litre per hour, is recommended. Later, fluid may be supplied by subcutaneous or rectal routes. When circulatory collapse accompanies diabetic coma, and especially when the condition does not improve, despite control of the hyperglycaemia and acidosis, no therapy is likely to be of avail, but insulin and glucose administration should supplement the measures directed to stimulating the heart and restoring the volume of circulating blood. Forty units of insulin may be given intravenously together with forty under the skin. A subcutaneous dose of twenty units may be repeated every hour, and at the same time hourly doses of twenty-five grams of sugar with ten grams of alkaline powder. If ingestion is not possible, glucose should be given subcutaneously, and supplemented by very slow rectal infusion of saline containing glucose and sodium bicarbonate.

[1] *Problèmes Actuels de Pathologie Médicale*, IIIe Série, Paris, 1934, p. 1.
[2] *Klin. Med.*, 1883, iv, 3.
[3] *Ann. Int. Med.*, 1931, iv, 1247.

A NORMAL HUMAN OVUM IN THE PRIMITIVE STREAK STAGE

Interest inevitably attaches to the discovery of an early human ovum seeing that but few have been described which are normal and anatomically complete. Jones and Brewer[1] have published a preliminary note on an ovum taken from a normal uterus removed for the purpose of sterilizing the patient, the tissue being fixed within ten minutes of the uterine arteries being clamped. The yolk sac measured 1 mm. in diameter, the disk was 0.58 mm. in length and 0.74 mm. in width, while the length of the primitive groove was 0.205 mm., and that of the primitive streak together with Henson's node 0.438 mm. Having obtained an accurate history the authors feel justified in fixing the age of the fertilized ovum as eighteen and a half days. The most important feature of this ovum is that it demonstrates the earliest stage in the formation of the human neurenteric canal which has so far been described. The villi, many of which are branched and some twice, vary in size and shape and cover the entire surface of the blastocyst. Each has a central mesodermal core and a covering of syncytium and Langhans's cells, the latter containing glycogen but not the former. Blood vessel formations arise *in situ* and can be identified not only in the villi but in the chorionic membrane, body stalk, and yolk sac wall. The view that the cytotrophoblast is foetal in origin and derives from the Langhans cells is supported, while the origin of the two types of foetal wandering cells can be definitely traced to the cytotrophoblast. The formation of the syncytium is followed in more detail than has previously been done. It does not completely surround and wall off the implantation cavity as in the other ova which have been described. Many of the syncytial masses have brush borders or prickle cells, but not those which penetrate most deeply into the maternal tissues. In the past there has been some conflict of opinion as to whether the penetrating layer of trophoblast causes destruction of maternal tissue or merely pushes it outwards. In the ovum reported both degeneration in the foetal and maternal tissues and outward pressure are observed. Small amounts of fibrinoid are seen scattered through the advancing trophoblast from which it apparently originates. In other places it clearly derives from degenerating maternal cells at the boundary zone; there is only slight leucocytic infiltration in the

[1] *Surg., Gynecol. and Obstet.*, 1935, lx, 657.

implantation site and almost limited to the decidua capsularis, suggesting that the leucocytes are concerned in the retraction and degeneration of that part of the decidua. Jones and Brewer suggest that the extensive invasion of leucocytes described in some recorded ova may be attributed to pathological changes in the uterus. It can hardly be doubted that the further study of this almost perfect ovum will add considerably to our knowledge of this subject, but the preliminary note for the most part confirms the descriptions which have been given by Bryce-Teacher, Frassi, and others.

ROYAL SOCIETY EXHIBITION

A conversazione of the Royal Society was held at Burlington House on May 3rd, when the number of scientific exhibits was so large that the rooms of other societies in the building had to be requisitioned. Some of the exhibits were of historical interest. One of these was the photographs and apparatus of Fox Talbot, including the earliest existing photograph, dated 1835, the subject being a window in Talbot's home, Lacock Abbey, in Wiltshire. Examples were also shown of Talbot's early calotypes, the first process to use both negative and positive, invented in 1840. The tercentenary of the birth of Robert Hooke, one of the most active of the experimental philosophers, is shortly to be celebrated, and among the exhibits were Robert Hooke's own microscope, dated about 1675, as well as a copy of his earlier and original combined microscope, as described in his *Micrographia*. It was a far cry from these ancient exhibits to an apparatus, shown by Dr. J. R. Baker, for making stereoscopic photographs with the microscope; in this device a special microscope stage is used which enables the object to be rotated through 15 degrees, and photographs taken before and after rotation form a stereoscopic pair. Another very ingenious apparatus, shown by Mr. A. G. Lowndes, was a twin-film camera attached to a microscope, for the investigation of the very rapid spasmodic movements of small animals, and along a similar line of achievement was the system of *x*-ray cinematography developed by Dr. Russell Reynolds. The laboratories of the Imperial Cancer Research Fund were responsible for a number of exhibits, Dr. R. J. Ludford showing the action of toxic substances upon the division of normal and malignant cells in tissue cultures, changes in the colloidal state of cells during growth and degeneration as demonstrated by dark-ground illumination, and some new methods of vital staining; and Dr. E. S. Hornung, the action of radium on the cell structure of mammary carcinoma and the normal mammary gland of the mouse. The Strangeways Research Laboratory showed by means of an indirect illuminator phases of the developing chick embryo, and the research institute of the Cancer Hospital some compounds of biological interest related to the sterols; the most potent carcinogenic compound obtained as yet is methylcholanthrene, a simple transformation product of deoxycholic acid of bile, and its formation and biological properties were illustrated. Among apparatus demonstrated by the General Electric Company were ultra-short-wave oscillators working on wave-lengths between 2.5 and 6 metres, suitable for medical diathermy, and by Standard Telephones and Cables, Limited, a cathode-ray cardiograph, making use of an oscillograph with a fluorescent screen, so that the long afterglow, which is the recording element, enables a light-accommodated eye to see the complete cardiogram for a period of ten to twelve seconds. The National Institute of Industrial Psychology made its contribution to road safety in the form of apparatus used in research into the psychological and physiological qualities necessary in motor drivers. In addition to an ingenious duplication of driving conditions on the road by means of a screen in front of the bonnet of a stationary car, the Institute had apparatus for the automatic recording of reaction times, for measuring the ability of a subject to judge relative speeds, and for the detection of heterophoria. One of the lectures given at the conversazione, by Professor E. D. Adrian, was on the electric changes arising in the brain, what is known as the Berger rhythm, after Professor Hans Berger of Jena, who showed, six years ago, that it was possible to detect a characteristic series of such changes by electrodes applied to the head. The changes take the form of a rhythmic oscillation of potential with a frequency of about ten per second, and the waves, according to Professor Adrian, are probably due to a spontaneous discharge taking place in the nerve cells of the occipital lobes. These are normally occupied with visual activities, and can only work in unison when the eyes are closed, which is a necessary condition for the Berger rhythm to appear. Berger found that the abnormal activity which occurs in convulsive states might give rise to large potentials. Normally the amplitude is one-tenth of a millivolt or less.

INFLUENZA IN 1935

The prevalence of influenza in the United States at the beginning of 1935 forms one of the subjects discussed in the first quarterly issue of the Epidemiological Report of the Health Section of the League of Nations. In the United States the epidemic wave of the winter 1934–5 was greater than those of 1933–4 and 1931–2, but did not reach the level of that of the winter of 1932–3. The disease was four to five times more prevalent in January, 1935, than during the same month in 1931, 1932, or 1934, but was markedly lower than in 1933. The mortality figures show that the disease was of the mild type. The general death rate for the eighty-six towns with a population of more than 100,000 was quite normal in December, the culminating point being reached in the week ending January 12th. Although as a general rule mild, influenza occurred throughout the greater part of Europe in the early months of the year in a definitely epidemic form. In Norway, Sweden, and Denmark the disease reached its maximum intensity in January or February, but among 8,458 cases reported in Copenhagen during the first eleven weeks only seven deaths were reported. In Germany the disease was more severe than in the Scandinavian countries. The number of influenza deaths reported in the large towns was comparable to that recorded during the epidemic of the winter 1930–1 but lower than during the epidemic

at the beginning of 1933. In Switzerland the epidemic spread very rapidly, especially in the west towards the end of January, but appeared to be much less fatal than those of 1927 and 1931. In France influenza spread to all parts of the country in January, and reached its maximum in Paris during the first ten days of February, when the general death rate exceeded the average by nearly 27 per cent., a comparatively high death rate occurring at the more advanced ages, as is characteristic in relatively mild epidemics. In Rumania, Yugoslavia, and Czechoslovakia influenza became widespread in January and February, while in Hungary an increase in the number of cases was not observed till March. In Spain influenza was prevalent in February, but did not reach serious epidemic proportions. In England and in the Irish Free State the disease was quite mild. In Scotland the number of deaths attributable to influenza in the great towns reached fifty-two, of which forty-five were in Glasgow.

MEDICAL EXHIBITS AT THE R.A.

The 1,756 works on view at the 156th exhibition of the Royal Academy of Arts at Burlington House, which opened to the public on Monday, include portraits in oils of Sir James Crichton-Browne, by Oswald Birley; of Dr. G. F. Still, painted for King's College Hospital by Gerald Kelly; of Sir George Newman, by Margaret Lindsay Williams; of Lieut.-Colonel C. T. Samman, Master of the Apothecaries' Society 1928-31, by Frederick Elwell; and of Dr. Ernest Martin, by Algernon Talmage. In the South Rooms there is a portrait in tempera of Professor Hugh MacLean, by Maxwell Arnfield, and a miniature of Sir John Thomson-Walker, by Percy Buckman. The Architectural Room contains drawings or models of five or six hospital buildings, of which the most important are those for the new medical school and nurses' home of Westminster Hospital by Adams, Holden, and Pearson, and the design for the proposed extension of University College Hospital by Waterhouse and Ripley; also a sketch for the stained glass memorial to Dame Mary Scharlieb in St. Mary Magdalene's, Osnaburgh Street, N.W. Lastly, among the sculptures, there is a head of Dr. R. R. Wade by Henry Pegram. Medical visitors to this year's Royal Academy who are more concerned with artistic treatment than with facial diagnosis will no doubt pay particular attention to the exhibits of Richard Sickert and Augustus John; and it may be supposed that they will have something to say at home about their reactions to the three pictures from the enigmatical brush of Stanley Spencer.

BLOOD TRANSFUSION IN HAEMOPERITONEUM

With the single exception of post-partum haemorrhage the surgeon is never faced, if traumatic injuries are excluded, with the effects of such rapid loss of blood as may occur with rupture of an ectopic gestation. It sometimes happens that the patient becomes pulseless during the operation, and lives are indubitably, if at rare intervals, lost before arrangements for a blood transfusion can be completed. It has from time to time been recommended that the blood extravasated into the peritoneal cavity should be reinjected into a vein, but a belief has always existed that such blood may be toxic, if not infected. Stabler[1] records that out of forty-six cases of ruptured ectopic gestation treated at Newcastle thirteen were given between three-quarters of a pint and one pint of their own blood infused intravenously. There was one death, which could not be attributed to the infused blood. The technique adopted was simple. Immediately the haemorrhage had been controlled the blood was baled out of the abdominal cavity, and for this purpose a coffee-cup was found useful. The mouth of the container into which the blood was introduced was covered with six or eight layers of muslin gauze soaked in a solution of sodium citrate, and a nurse added the requisite amount of this solution to prevent clotting. The author claims that such a procedure leads to a rise of between 20 and 30 mm. Hg in the systolic blood pressure and increases the red cell count by from one and a half to two millions and the haemoglobin by some 20 per cent. The value of the method is nevertheless somewhat limited by the warning that blood extravasated for more than twenty-four hours should not be reinjected. In many of the most serious cases one or more haemorrhages may precede the final one by as much as, or more than, twenty-four hours.

ROLL OF BIO-PHYSICAL ASSISTANTS

The question of the establishment of a comprehensive register, under the control of an independent body, of those engaged in services ancillary to the work of the medical profession, has been under consideration for some time past by the Science Committee and the Council of the British Medical Association. A scheme for such a register has now been drawn up by representatives of the bodies concerned—namely, the Society of Apothecaries, the Chartered Society of Massage and Medical Gymnastics, the Society of Radiographers, and the British Medical Association—and received the approval of the Council last year. It is proposed that the register shall be known as the *National Register of Medical Auxiliary Services*. Admission to the roll will be confined to persons possessing qualifications granted by the qualifying bodies represented on the Board, subject to certain conditions, including one that they will not treat any patient except under the direction and control of a registered medical practitioner. Pending the establishment of a comprehensive roll of medical auxiliaries, we publish this week as a Special Supplement the complete list of names on the *Register of Bio-Physical Assistants*, revised to March 31st. The entries in Part I are arranged in alphabetical order, with postal addresses; in Part II the names are regrouped geographically. Since the British Medical Association was primarily responsible for the setting up of this register, we hope that members will preserve the *Supplement* and send their patients who require treatment by light and electricity to technicians holding the diploma of the Society of Apothecaries.

Lord Dawson of Penn, Sir Farquhar Buzzard, and Sir Lisle Webb have been appointed honorary consulting physicians, and Sir Holburt Waring, Lord Moynihan, and Mr. R. C. Elmslie honorary consulting surgeons to the Ministry of Pensions.

[1] *Journ. Obstet. and Gynaecol. British Empire*, 1934, xli, 768.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

THE TREATMENT OF ANGINA PECTORIS

BY

K. SHIRLEY SMITH, M.D., B.Sc., F.R.C.P.

A patient who genuinely experiences very severe pain in the centre of the chest most probably has some form of angina pectoris. This pain is the expression of myocardial ischaemia, which is the outcome of disease or derangement of the coronary arteries. If the arrest of blood supply is permanent, infarction of the heart muscle takes place and the pain is prolonged for hours or days (coronary thrombosis). During exertion the heart muscle requires extra blood, and if through disease of the coronary arteries this demand cannot be met temporary myocardial ischaemia results and anginal pain is experienced; this pain disappears with the cessation of effort, and is therefore known as angina of effort. Sometimes paroxysmal anginal pain arises independently of effort, but it is then associated with some factor that might be regarded as the equivalent of effort, such as a large meal, or a fit of anger, or a sudden change in the temperature of the environment. Paroxysms of this kind are suitably referred to as spasmodic angina, or as angina decubitus if the attacks take place at night. A consideration of the syndrome of coronary thrombosis is beyond our present purpose. Of the other forms of angina, effort angina is by far the commonest; it will therefore receive primary consideration here.

Whatever its severity, anginal pain has invariably a continuity that distinguishes it sharply from the stabbing or pricking pains over the left mammary region which have no constant relation to effort and do not represent myocardial ischaemia. Anginal pain has a tendency to radiate into the throat, to the left shoulder and arm, and sometimes to both arms, even reaching the fingers. Unusually, radiation may involve the jaw, epigastrium, or scapula. Any conjunction of events that conduces to relative myocardial ischaemia may play a part in the production of anginal pain. Thus an emotional disturbance or any form of rapid action of the heart may be as potent as physical activity to invoke pain, while anaemia or hypoglycaemia serve as well as coronary sclerosis to starve the heart muscle.

General Regime

The decision that a patient is suffering from angina pectoris commits the physician to a complete review of the patient and his mode of life. This includes work and recreation, hours of rest, diet, habits, and temperament. The scheme of treatment should therefore embrace these factors in a suitable regime. It should also include preventive measures and the means of treating attacks. Finally, it should seek to control associated or contributory disorders.

The treatment of angina pectoris consists in a mode of life rather than a therapeutic system. Every modification in the daily life of the patient has as its object the avoidance of the pain. In milder grades of the malady the patient is allowed to pursue such activities as do not result in pain. It is often found that the amount of exertion necessary to induce an attack is remarkably constant, and the intelligent individual quickly learns to keep within the limits of pain-production. He should be warned to avoid those activities which might compel unwonted exertion, such as country expeditions and the care of children. All forms of strenuous activity—running, swimming, rowing, lifting, and the like—should be absolutely forbidden. Inquiry should be made into the business and domestic affairs of the patient, and, as far as possible, all sources of worry, anxiety, and fatigue should be removed. Sometimes it is found that the hours of rest are insufficient: ten should be a minimum. The patient should be taught to relax his muscles purposefully when resting, and to divert his mind, if necessary by suitable reading, from the cares and worries that so often aggravate the condition.

Diet.—There is no need to limit the diet in any way that is irksome or obtrusive. Moderation in a general dietary is to be advised. Meals should be small in bulk and taken with a minimum of fluid. In the spare, active type of patient a tablespoonful of medicinal glucose, taken in powder form with the principal meals, serves as extra nutrition for the heart muscle. In general, alcohol is best avoided, but the patient who sets store on a glass of sherry or white wine with a meal, or who finds that a whisky at night promotes mental relaxation and sleep, may derive more harm than good from abstinence. Exercise after a meal is particularly apt to induce anginal pain; sitting for half an hour to an hour after food is a good rule for all anginal subjects, and especially for those in whom the taking of food predisposes to pain. When it is recognized that a change of temperature brings on an attack, the bedroom should be warmed both before retiring and before rising. Cold winds are especially to be avoided by these patients.

Rest.—Confinement to bed for a period of two or three weeks is indicated in the following circumstances: when the attacks are becoming more frequent or more severe; when nocturnal attacks supplement angina of effort; when there is suspicion that the anginal syndrome had a recent origin in coronary thrombosis; when there is evidence of active myocardial disease (for example, frequent premature contractions or various grades of heart-block); when associated diseases such as syphilitic aortitis or an anaemia exist. It is advisable sometimes to send the patient—if his financial status allows it—on a holiday of three to six months in a warm but not hot climate. This is specially advisable if the disease is of recent onset and if it is suspected that the occupation or environment has contributed to the development of the syndrome in a highly strung patient; also if the anginal syndrome dates from an acute coronary occlusion. In the latter event the patient has, in any case, a month or two to spend before he can be allowed to resume even partially the physical and mental stress of his occupation.

Medicinal Treatment

Medicines may be administered as treatment in an attack, as means of preventing attacks, and as remedies for individual symptoms.

IN AN ATTACK

An "attack" often consists merely in the development of a premonitory pain or sense of constriction during exertion. The patient should at once discontinue the effort and, if possible, sit down; he should chew a tablet

of trinitrin 1/100 grain, and allow it to dissolve under the tongue. These measures usually bring relief within a minute or two ; if not, another tablet should be taken.

The pain may in severer cases develop more suddenly or become rapidly intense. The same principle of immediate rest applies, but nitrite may be more advantageously inhaled. A capsule of amyl nitrite (5 minims) is crushed and held under the nostrils, while several deep breaths are drawn. The pain should then abate within a few seconds, and at the same time the patient experiences a sensation of heat in the face, throbbing of the head, and sometimes dizziness. Patients should be warned of these collateral effects before being given the first inhalation of amyl nitrite. When no nitrite is available, whisky or brandy may give considerable relief, and they may also be used if the patient shows any degree of collapse or faintness after the attack. If an attack persists for an hour or more in spite of nitrites, coronary thrombosis has probably occurred ; the patient should be put to bed and given an injection of morphine 1/4 grain.

TO PREVENT ATTACKS

The success or otherwise of a patient in warding off attacks of effort angina is in direct proportion to his intelligence and care in following the prescribed regime. The pain is so often related to a particular amount of exertion, and even confined to a certain time of day, that a wise patient has a fair prospect of preventing attacks. But whatever forethought or care the patient exercises he is never free from the possibility of spasmodic attacks at any time, and he should therefore always carry one or two capsules of amyl nitrite and some tablets of trinitrin. The latter deteriorate with keeping, and fresh supplies should be obtained every two months. If the patient feels he must undertake some activity that is apt to bring on the pain, he should take one of the trinitrin tablets a quarter of an hour in advance. If the patient is subject to pain at certain times of the day, despite his usual precautions, he should take trinitrin before those times. Such medication may be given from three to a dozen or more times in the day. By this means the patient may be able to follow quiet activities and lead a useful life, whereas otherwise he would remain gravely incapacitated, tied to his house, if not to his room. This therapy may not safely be regarded as a licence for unnecessary activities.

Another drug that is known to produce dilatation of the coronary arteries is theobromine sodium salicylate (diuretin). This may be given as a routine in doses of 10 grains thrice daily ; it is perhaps specially indicated when coronary sclerosis is attended by infrequent bouts of anginal pain. When the patient is highly strung, and there is a pronounced neurogenic element in the attacks, the combination of 5 grains of theobromine with half a grain of sodium luminal is often valuable.

FOR OTHER SYMPTOMS

Apart from those medicaments directed to producing coronary dilatation, the patient may need treatment for associated disorders of function. If he is of nervous and excitable temperament a routine sedative such as a draught combining 10 grains of potassium bromide with 1/2 grain of luminal may be given on retiring or twice daily. This will often enable the patient to tolerate the extra hours of rest which have been advocated in the readjustment of his regime. For insomnia this draught may be effective, or, alternatively, 20 grains of potassium bromide with 10 grains of chloral hydrate. Chloral hydrate (20 grains) or syrup of chloral (2 drachms) offers the best prospect of relief from angina decubitus.

Flatulence or gastric distension seems frequently to predispose to attacks of angina pectoris. A pill containing calomel 1/6 grain, menthol 1/4 grain, pulv. zingib. 1/4 grain, and taken thrice daily after meals is then useful. The treatment of constipation is important, since many patients experience attacks through straining at stool. For constipation that is more than occasional it is best to employ a regular lubricant, such as paraffin emulsion half an ounce twice daily, with or without phenolphthalein 1 to 3 grains. Senna tea or cascara evacuant may be given in more obstinate conditions.

DRUGS TO AVOID

Smoking is unwise for those who suffer from angina. In some syndromes it is clear that the use of tobacco increases the frequency and severity of the pain. For these patients, and for those who have chronic cough, smoking should be forbidden. On the other hand, there is less to be said for abstinence in those who have gained no benefit from it during a period of some months.

There are certain drugs that may be dangerous if given to anginal patients. Adrenaline, ephedrine, and thyroid, even in small doses in some subjects, increase the rate and force of the heart-beat. The myocardium will consequently demand increased blood supply, which the coronary arteries may not be able to provide. These drugs are therefore apt to provoke anginal pain.

Treatment of Associated Disorders

Apart from the measures designed to prevent attacks or to alleviate other symptoms, there are frequently associated disorders which urgently need correction. Such collateral conditions may exert a harmful influence in that they throw an additional burden on the heart: to this group belong obesity, with the frequently attendant flat feet ; high blood pressure ; and thyrotoxicosis. Other associated abnormalities, such as anaemia and hypoglycaemia, render the patient specially liable to attacks by enfeebling the nutritive power of a myocardial blood supply already reduced in volume.

Obesity offers special difficulties of treatment in the subject of angina of effort. Exercise and thyroid medication are alike contraindicated. Dieting alone remains. The patient should be instructed to avoid fried foods, gravies, and sauces ; to take no sugar in beverages, no food at tea-time, no bread except at breakfast, and no food between meals. He is advised that lean meat, clear soup, fish, chicken, green vegetables, and fruit are not fattening, and should form the bulk of the diet. Flat-foot and other minor foot troubles that may result from obesity constitute not only a source of peripheral irritation but a definite extra load on the heart. They therefore demand correction. The elimination of septic foci may turn out to be of importance. Sources of gross sepsis, such as dental caries, pyorrhoea, and sinus or tonsillar infection, demand judicious removal at an early opportunity.

High blood pressure commonly exists in those subject to angina. The regime, dietary, and medicaments already mentioned in the treatment of the anginal patient are those which may also help to lower the blood pressure. When the pressure remains persistently at a high level venesection (20 ounces) is indicated, and may be repeated at intervals of three months if it confers benefit. When a patient suffers from angina and thyrotoxicosis, thyroidectomy may be the only means of giving relief and improving the effort tolerance. If this operation is performed the surgeon should aim at complete removal. The resulting myxoedema can subsequently be corrected by suitable thyroid medication. If angina pectoris and diabetes occur in the same patient the coronary syndrome should first receive attention. It is wisest not to interfere too much with the diabetic condition, and the patient is safer passing small amounts of sugar with a mild hyperglycaemia. The attempt to abolish glycosuria and hyperglycaemia by the use of insulin in these patients has

many times brought infarction of the heart or sudden death. The last, but by no means least important, contributory factor is anaemia. The cause (or colour index) of the anaemia is immaterial from the standpoint of anginal pain. For pernicious anaemia the usual liver therapy should be instituted. For the microcytic or nutritional types, pil. ferri 30 grains thrice daily, or iron and ammonium citrate 40 grains thrice daily, will be suitable medication.

Surgical Treatment

From time to time certain surgical procedures have been advocated for the relief of angina pectoris. Paravertebral injections of alcohol are said to yield good results. Cervical or dorsal sympathectomy has also been followed by improvement in some cases. These, and other surgical procedures, are still largely in an experimental stage, and will not be further considered.

WIESBADEN MEDICAL CONGRESS

Three prominent German medical societies, led by the Society for Internal Medicine, held a joint meeting at Wiesbaden from March 24th to 29th, when a number of different subjects came up for discussion.

RESPIRATION AND THE CIRCULATION

The problem of the inter-effects of circulation, and vice versa, was discussed by Hess of Zurich, Wenckebach of Vienna, and Hochrein of Leipzig. The last-named dealt with his own work on the localization of the nervous centre of respiration and circulation in the middle- and sub-calamus. Stimulation of the medial margin of the latter produced a fall in blood pressure, whilst a rise followed stimulation of the rostral part of the posterior sub-calamus. Hess emphasized the importance of a detailed histological examination of this area, the stimulating margin of which was less than one millimetre in extent. Hochrein, discussing the possibility of the lungs acting as a blood reservoir, stated his belief that their blood content was more or less constant, irrespective of whether the organism was resting or not. The resting lung would thus act as a blood reserve in the same way as the spleen. In the subsequent discussion Rein of Göttingen disagreed with this view, and showed curves demonstrating the changes of the carbon dioxide content and oxygen content of the respiratory gases produced by slight exercise. The alteration of the respiratory volume followed so rapidly upon the commencement of exercise that it could not be due to the stimulating effects of products of increased metabolism, but must be the result of a reflex action. Further, there was an instantaneous increase in the venous blood supply to the lung originating from the vena cava, which was responsible for the effect noted by Hochrein—that is, an increased output of arterial blood.

AERONAUTICS: AGRANULOCYTOSIS

The second day of the congress was devoted to a discussion of medico-aeronautical questions, in particular the effects of high altitudes and rapid changes in height on the endurance capabilities of the human organism. During the same day the effect of physical exercises on the heart also came up for discussion.

Acute diseases of the myeloid system were also dealt with, Hellman of Lund discussing the pathological side of the problem, while Werner Schultz of Charlottenburg dealt with the clinical aspect. Naegeli of Zurich, dealing with agranulocytosis, advocated the more frequent use of sternal puncture in order to discover what changes were taking place in the formation of blood cells. Reference was made to the influence of individual drugs on blood composition, and it was stated that in America the prospect of healing advanced cases was considered to be rather small. Schultz regarded liver therapy favourably, but had not seen any success with pentnucleotide or with adrenaline. German workers could only attribute 10 per cent. of their cases of agranulocytosis to the use of drugs, and at the request of the German Ministry of Health an investigation of the prolonged administration of large doses of amidopyrine showed no agranulocytosis. In some instances more than a kilo of this drug had been taken in the course of time. It was believed that only a small percentage of the population was susceptible to these drugs, and Schittenhelm of Munich emphasized that rare cases should not result in a general repudiation of them. Plum of Copenhagen and Stähelin of Basle showed that an appreciable percentage of cases of agranulocytosis had been traced to the use of amidopyrine, but this was negligible if the total number of people using the drug was taken into consideration.

OTHER SUBJECTS

Pulmonary tuberculosis treated by the thoracocaustic method was also discussed. Hein of Tönsheide and Maurer of Davos showed *x*-ray photographs illustrating the results of this electrical burning of adhesions between the lung and the pleura. Sauerbruch of Berlin advocated that the operation should not be applied when the adhesions covered wide areas.

Schulten of Hamburg discussed the importance of specific serological reactions in hospital and general practice, and referred to their value in diagnosis. The Wassermann reaction had been supplemented by a flocculent reaction using specific spirilla extract developed by the speaker in collaboration with Gaethgens of Hamburg. Recognition of typhoid and paratyphoid was aided by an agglutination reaction after Gruber-Widal's method. Serum diagnosis was possible in the following diseases: gonorrhoea, Weil's disease, Bang's disease, whooping-cough, streptococcal infection (endocarditis lenta), and erysipelas.

Some attention was given to gastroscopy as a supplement to the diagnosis of gastric disease. It was mentioned that in place of the old rigid tube a flexible instrument had now been constructed which gave a clear view of the inside of the stomach; the musculature as well as the opening and closing of the pylorus could be observed.

BIOCLIMATOLOGY

Schittenhelm discussed the rhythmic changes of the surroundings (night and day, the seasons, etc.) which had an appreciable effect on the working of the organism. It was well known that there was a noticeable increase in the number of births and deaths in the early hours of the morning. Equally remarkable was the twenty-seven-day rhythm of death, which had been satisfactorily proved by statistics. Even such subtle things as the phosphorus, calcium, and iodine content of the blood were also subject to rhythmic changes. Another point to which Madsen of Copenhagen referred was the change in the power of resistance to various infections with the seasons. Schittenhelm pointed out that the climatic stimulation could considerably modify the organism, because of its adaptability, and thus give rise to racial changes. Examples of the development of local races in botany and zoology were referred to. Linke of Frankfurt, after mentioning the physiological effects of the electrical field round the earth caused by sunspots, stated that the existence of the "magnetic earth radiation" was not proved.

On the last day of the meeting Heubner of Berlin discussed balneological research, and criticized the methods hitherto employed in this field, in that the fundamental results were unreliable and insufficient. Detailed investigation of our knowledge of human metabolism was now called for. Conclusions based on animal experiments should be arrived at with special caution. Rein of Göttingen confined himself to the physical effects produced by heat and electricity, the experimental basis of which had been worked out by the speaker. He mentioned that it was not the elevated temperature, but the temperature gradient that caused the physiological stimulation. The effects of faradic current had been found to depend largely upon the frequency of the current. High frequency caused motor excitement in the sciatic nerve, whereas low frequency stimulated the sensory and vegetative centres. The speaker expressed hope that the speculative theories dominating this field of activity, and mainly due to insufficient training of medical students in physics, would in future disappear.

ONE HUNDRED AND THIRD ANNUAL MEETING

of the

British Medical Association

MELBOURNE, 1935

THE British Medical Association will hold its 103rd Annual Meeting in Melbourne, Australia, during the week beginning September 9th, 1935. The Sectional sessions for scientific and clinical work will be held on Wednesday, Thursday, and Friday, September 11th, 12th, and 13th. The Annual Representative Meeting for the transaction of medico-political business will take place in London at the Association's House on Friday, July 19th, and following days.

Members travelling to Australia through the United States will sail for New York from Southampton on Saturday, July 27th ; if travelling by the Canadian route to San Francisco, they will sail for Montreal from Liverpool on July 26th, or from Glasgow on July 27th. Particulars of the two routes were given in our *Supplement* of March 10th, 1934, and a series of descriptive notes on the tour to Melbourne and back has been appearing in these columns at short intervals since February 9th, 1935. All the arrangements for the journey are in the hands of the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, London, W.C.1, to whom *early application* should be made for reservation of places on steamers and trains and at hotels. Members who cannot afford to be away for the whole time of the " round-the world " tour may leave London on August 8th, travelling overland to Toulon and embarking there on a P. & O. liner which arrives at Fremantle on September 3rd. The journey on to Melbourne takes three days by rail, so that those who follow this route will reach their destination three days before the meeting opens.

The honorary local general secretary for this year's Annual Meeting is Dr. J. P. Major, Medical Society Hall, East Melbourne, Victoria. The names of the officers of the fourteen Scientific Sections were given in our *Supplement* last week ; and further information, with provisional programmes, etc., will appear in subsequent issues. We publish below the fifth of a series of articles on the city of Melbourne and its medical institutions ; the first appeared on October 20th, 1934 (p. 730), the second on December 8th (p. 1050), the third on January 19th, 1935 (p. 110), and the fourth on March 16th (p. 541).

PUBLIC HOSPITALS OF MELBOURNE

Melbourne public hospitals from their inception have been places of medical and surgical treatment for the sick poor ; as a natural development they became training schools for medical students and for nurses. A two-storied house lent by Mr. John Pascoe Fawkner in 1839 and providing accommodation for twenty beds, four medical men attending the inmates, was Melbourne's first public hospital. The city was then but a bush village on the left bank of the Yarra, with a population which was growing very slowly. An immigration policy followed, increasing the population by about 10,000 annually ; and with the over-seas arrivals, many of whom were without means, diseases previously unknown appeared. The amount of sickness prevalent and a realization that the care of the sick poor was a charge upon all, forced a recognition of the impermanence and inadequacy of existing conditions.

THE MELBOURNE HOSPITAL.

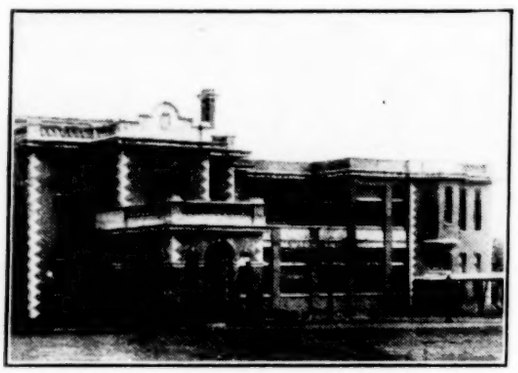
Melbourne Hospital

The result was the laying of the foundation stone in 1846 of the Melbourne Hospital. This building was ready to receive patients on March 15th, 1848, and by the end of the year its original capacity of ten beds had been increased to twenty. Then came the gold discoveries, and an enormous increase of population, requiring further hospital provision. To meet the demand " The Melbourne," during the four years 1848–52, increased its accommodation to 104 beds, of which twenty-eight were included in a ward reserved for fever patients. By 1861 the institution had grown to 300 beds. The present buildings, opened on July 22nd, 1913, provided 100 additional ones, giving accommodation for approximately 400 beds. In 1880, with 300 beds, there were eighteen honorary medical officers, five resident medical officers, sixty nurses, but no special departments, to meet the needs annually of 4,000 in-patients and 22,000 out-patients. In 1934 there were, however, fifty-nine honorary medical officers, thirty-four resident medical officers, 261 nurses, and eighteen special departments to provide for 8,450 in-patients and 49,459 out-patients.

Medical students first appeared in the wards in 1864, and from these the honorary medical staff was eventually recruited. In 1876 Dr. Harry Brookes Allen, after a term as resident medical officer, became pathologist, continuing with the work for nearly half a century. He was instrumental in the establishment of the Walter and Eliza Hall Institute of Research, which was named after the donors whose generosity enabled it to be established. The estate provided, in addition to the buildings, a considerable sum annually towards maintenance, and this is supplemented from contributions by the clinical teaching staff. The buildings, which were completed in 1916, include fifteen laboratories, the library, museum, and experimental animal houses. The research of the Institute

has been extensive, covering commoner bacterial infections, bilharzia, syphilis, hydatid disease, brain tumours, and tumours of the testicle. Papers, too, on the immunology of hydatid disease with special reference to anaphylaxis, the pathology of renal disease, and, more recently, on the toxicity of Australian snake venoms, have been produced by the staff.

Medical services have always been provided under the honorary system. Originally, members of the medical staff were elected by life governors or annual subscribers, but in 1910 the present system of appointment by an electoral college was instituted. The first special department of the hospital was that of dermatology, to which Dr. William Moore was appointed in 1885. In 1891 the Nurses' Training School was instituted under the tutelage of the matron (Miss Rathie) and Drs. W. Moore and G. T. Howard. Associated with the institution during the eighty-two years of its existence have been many distinguished men. The first surgeon, David Thomas, was an outstanding personality; he was the pioneer operator and the first to use anaesthetics in Victoria. With him were associated Gilbee and Garrard. A. C. Brownless (afterwards Sir Anthony) was an early physician. Then there was James Robertson, the first lecturer in medicine, and the late Thomas Fitzgerald (afterwards Sir Thomas), that brilliant original surgical genius and leader of surgery



HAMILTON RUSSELL HOUSE: ALFRED HOSPITAL, MELBOURNE.

in Australia. William Moore, George Syme, F. D. Bird, F. H. Langlands, and G. C. Rennie represent the first batch of Australian-trained surgeons on the staff. They were men who left behind them traditions of the highest surgical skill.

Alfred Hospital

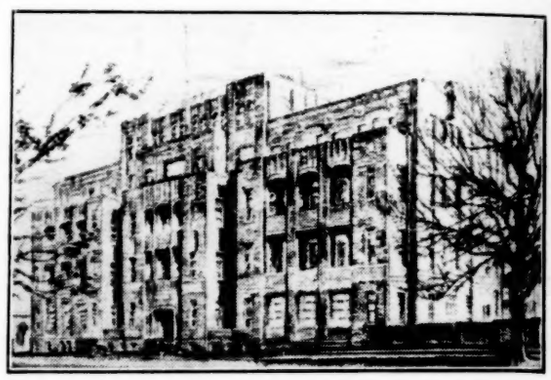
The foundation stone of the Alfred Hospital was laid by H.R.H. Prince Alfred, Duke of Edinburgh, in 1869. A staff was appointed, and the hospital was officially opened two years later. Original accommodation provided for 120 patients; to-day there is accommodation for 338 public ward patients, including a ward of forty beds for children. The Hamilton Russell House, containing eleven beds for private patients and twenty-nine intermediate patients, is also part of the institution.

The first medical staff consisted of one resident medical officer, three physicians, and three surgeons, together with two physicians and two surgeons for the out-patients' department. To-day there is an honorary staff of 137, including twelve dentists, and a resident medical staff, consisting of a resident medical superintendent, assistant pathologist, officer in charge of general clinic, three registrars (medical, surgical, and radiological), and fourteen junior medical officers. A pathologist and clinical radiologist are also employed, but are non-resident. The number of patients treated during the year ended June, 1934, was 55,148—6,512 in-patients and 48,636 out-patients.

To the hospital is attached the Baker Institute for Medical Research, founded in 1926. The Institute includes the biochemistry department of the hospital, and works under a unified control with the pathological department. All Institute facilities are made available to the students, and special classes are arranged for bacteriological studies. A research institute such as this attached to the hospital has been found to be a powerful stimulus to earnest work.

The "Alfred" was admitted to the status of a teaching hospital in 1881, but it was not until 1888 that the school was opened. The first enrolment was six women and eight men students. The history of the Alfred Hospital is interesting in that it was selected as the institution in Victoria to make the first determined move to admit women to the medical course. Something in this direction had been attempted some years before at the Melbourne Hospital, but it was unsuccessful, mainly through the necessity to mix the sexes under crowded conditions. At the "Alfred" these conditions did not exist, and with the greater freedom and less crowding it was thought the experiment would be justified. Distance from the university, however, proved a handicap, and forced the closing down of the school. Eventually, after a lapse of fourteen years, overcrowding of students at the Melbourne Hospital made expansion of teaching facilities imperative. This resulted in teaching being resumed at the Alfred and St. Vincent's Hospitals.

Until the children's ward was equipped in 1901, it was customary for members of the resident medical staff before joining the "Alfred" to have held appointments in other hospitals. They were, therefore well equipped for clinical



ST. VINCENT'S HOSPITAL, MELBOURNE.

teaching. In those days, too, resident medical officers were permitted to indulge in the habit of remaining for some years with the hospital. But with the opening of the children's ward, usual practices covering conditions of appointment as resident medical officers came into force and have since remained. The up-to-date children's ward and attached out-patients' department have been of distinct advantage to students. The hospital has known many distinguished surgeons and physicians, and the mention of such names as O'Hara, Jamieson, Hamilton Russell, and A. V. M. Anderson cannot fail to excite pleasant memories to members of the profession and others who have been associated with the Alfred Hospital.

St. Vincent's Hospital

To provide increased hospital accommodation necessary for the poorer areas of the north-eastern part of the city, the Order of the Sisters of Charity undertook to supply a hospital, and St. Vincent's was established in 1893 by acquiring a two-storied terrace of three houses in Victoria Parade, Fitzroy. The first rectress was Mother Berchmans Daly, a remarkable woman who combined organizing and financial ability with a charming personality. The accommodation soon proved inadequate, and a permanent building, with provision for 120 beds, was erected in 1905. A large out-patients' block and nurses' home was added in 1914, and a further addition providing for 300 beds was completed and brought into service in 1934. The institution received the status of a teaching hospital in 1910. The instructional staff of the first clinical school included a number of brilliant and energetic young men, and considering the personnel it is not surprising that the school attracted a number of outstanding students. The staff is now one of fifty honorary medical officers

(as compared with seventeen originally appointed in 1893), ten resident medical officers, and 158 nurses. Throughout its forty years of service to the public, St. Vincent's has maintained the ideals with which its founders were inspired, and has established by virtue of its sound clinical methods the highest traditions both in nursing and in the practice of medicine.

Women's Hospital

To aid women arriving at the Port Phillip Settlement from over-seas and mining camps destitute and nearing confinement there existed in the early 'fifties a society known as the "Local Visiting Benevolent Saints." Dr. Joseph Maund, the medical advisor to the society, was so impressed with the excellence of its work that he called his friends together and collected sufficient money to build and staff a hospital for women. The site chosen was the one upon which the building now stands, and the name selected was the Lying-in Hospital and Infirmary for Diseases of Women and Children. The building was of brick, with provision for twenty beds. It was completely furnished, staffed, and ready to receive patients in 1856.

From time to time additions have been made increasing the accommodation to a present capacity of 275 beds and 109 babies' cots. With the addition in 1889 of a midwifery block a new staff was elected, and the name of the institution was changed to the Women's Hospital. A clinical school was established in 1862 for instruction in midwifery and gynaecology, and since then students of the University Medical School have received their training in midwifery and gynaecology at the Women's Hospital. In 1891 a separate gynaecological department was opened, and in 1895 an out-patients' department was established. It has been the policy of the hospital to add facilities to meet procedures following upon advancement in medical science as occasions arose, the latest being the ante-natal clinic and a completely equipped *x*-ray and radium department.

The first Caesarean section undertaken in Victoria was performed in this hospital in 1860. The operation took place while the mother was having a fit; the child lived, but the mother died. The first ovariotomy in Melbourne was also performed in this hospital, and so pleased were the doctors with the success of the procedure that they kept the tumour, after preparation, in a glass case. It is recorded, too, that the assisting nurse was given a new bonnet! During the seventy-eight years of its existence the staff, originally consisting of two honorary medical officers, has increased greatly, numbering at the present time sixteen honorary medical officers, seven resident medical officers, and 152 nurses. The hospital clinical meetings of the British Medical Association are held at frequent intervals in the various departments, and special facilities are made available for post-graduate classes each year. Visiting doctors from the country and other States undergoing a refresher course in midwifery and gynaecology take up residence within the building.

Children's Hospital

Sixty-four years ago some philanthropic ladies in Melbourne decided to form a children's hospital. Having obtained subscriptions, they provided in a small, single-fronted house at 19, Stephen Street (now Collins Place), in October, 1870, six cots and a room for out-patients. Dr. William Smith, demonstrator of anatomy at the Medical School, and Dr. Singleton, a general practitioner, volunteered to visit the hospital on alternate days, while Professor Halford and Dr. Motherwell acted as consultants. Domestic nurses were employed, and three years elapsed before it was found feasible to appoint a resident matron. The general management and financial control of the hospital has always been in the hands of ladies' committees, which have maintained the wise, broad, and liberal spirit of practical charity which inspired the founders.

In 1873 a move was made to better premises at 19, Spring Street, overlooking the Treasury Gardens. With this move the hospital doubled its accommodation, but again it proved too small for the increasing demands. It was possible, in 1876, for the committee to acquire for £10,000 an acre of land on which stood the beautiful villa of Sir Redmond Barry in Pelham Street, Carlton, and there the hospital came to its permanent home. There were no specialists for children then, and it was not until 1878, when Dr. William Snowball became resident medical officer, that a medical man set out to be purely a children's doctor. Doctor Snowball's acumen and keen observation, combined with a remarkable charm of manner towards all children, especially the sick, soon gained him the reputation as "the children's doctor," a reputation which spread the fame of the hospital afar. The systematic training of children's hospital nurses, certificates for which were first issued in 1890, was an innovation for which he and his staff were responsible.

After a few years the villa was found to be too small also. The addition of a top story met immediate demands, but plans for a complete hospital were made, and at intervals of a few years, medical and surgical pavilions, an administrative block, a nurses' hostel, a babies' wing, a great out-patient block, a pathological and other special departments were built at Carlton, additional land having been acquired. A very useful extension was made in 1884, when a convalescent cottage at Brighton Beach was added. Many years later, when the full value of sunshine and open air was recognized, a sun room was built at the cottage, and the success which attended its use was responsible for the purchase in 1926 of twenty acres of land by the sea at Frankston for the Hospital for Crippled Children. This can now give accommodation to 100 patients, who, in addition to treatment, have the advantage of State school education and, for the older ones, of certain elementary technical training.

A man who made a deep impression by his methods of treating morbus coxae and caries of the spinal column was Dr. Peter Bennie, who joined the staff in 1883. Bringing his mathematical mind to bear on many problems of conservative surgery, he devoted much time to teaching the correct use, measurement, and application of Thomas's hip splints, and developing their use for dorsal and cervical caries. Another great name associated with the hospital is that of Mr. Hamilton Russell, who joined the honorary staff in 1892. His original mind and surgical instinct, working in a new field, soon brought forth a series of remarkable papers, which threw a new light on the nature of hernia and its treatment. This quickly gained world-wide recognition, as did other work of Mr. Russell's on surgical problems. Orthopaedics then came into prominence, and as other specialties were developing within the special hospital there came a division of the honorary staff into physicians and surgeons. The earlier paediatrists had beds in both sections. To-day the beds available at Carlton, Brighton, and Frankston number 375, and the yearly attendances of out-patients run into six figures.

Subsidiary Hospitals

This brief description of the chief institutions of the metropolis serves but to indicate the foundation on which has been built the public hospital system of the State. Many subsidiary hospitals exist in the city, among which the Queen Victoria, a hospital for women only, should be particularly mentioned. This institution, which has a bed accommodation for 130 patients and a staff of thirty-one honorary medical officers, eight resident medical officers, and ninety nurses, is understood to be one of the largest, if not the largest, institution of its kind in the British Empire entirely managed and medically staffed by women. The Jessie Emily McPherson Intermediate Hospital, with a bed capacity for fifty patients and employing forty-four nurses, is also attached to the institution. Then there is the Prince Henry Hospital, formerly the Homoeopathic Hospital, an institution founded in 1869 and now having accommodation for 125 patients, and a medical staff of forty-six honorary medical officers, seven resident medical officers, and seventy nurses. Other institutions are the Eye and Ear Hospital, founded in 1866,

and now with accommodation for 120 beds, a medical staff of seventy honorary medical officers, five resident medical officers and forty-eight nurses; the Convalescent Home, founded in 1925, having accommodation for 175 patients, and having one honorary medical officer, a medical superintendent (non-resident), two resident medical officers, and thirty-six nurses; the Austin Hospital for Cancer and Chronic Diseases, founded in 1881, and now with a bed capacity of 375, and a medical staff of twenty-two honorary medical officers, five resident medical officers, and 115 nurses; and the After-Care Home, founded in 1926, capable at the present time of accommodating 120 patients, and with a medical staff consisting of twelve honorary medical officers and twenty-eight nurses.

Administration of Public Hospitals

Public hospitals, not only in Melbourne but throughout the whole State of Victoria, are conducted under the voluntary system subsidized by governmental grants, municipal aid, and fees from patients. The Hospitals and Charities Act, under which they are incorporated, provides for the appointment of the Charities Board of Victoria, the duty of which, among other things, is to report to the Minister what sum of money should be paid from a fund established for the relief of diseased, infirm, incurable, poor, or destitute persons resident in the State to the respective institutions each year to provide for their equipment and maintenance; and, with a view to enforcing the observance by an institution of any provisions of the Act or regulations, or to closing an institution, even, if the Minister so determines, to withhold any sum from the fund. It is also the duty of the Board to see that every subsidized institution throughout the State is inspected from time to time and at least once a year. By virtue of these powers over finance paramount control of public hospitals lies in the hands of the Minister administering the Act. The reason for this right to control is obvious. Public hospital expenditure in Victoria during 1932 amounted to £747,708 of which the Government provided £219,148, municipalities £18,426, and other sources—private contributions, legacies, and collections from patients—£510,134. Government control, however, is more or less nominal. Individual hospitals appoint managing committees pursuant to machinery provided under the Hospitals and Charities Act, which virtually holds the hospital committees responsible for the control and management of their respective institutions. Their powers of control are limited only by the provisions of the Act. The Charities Board, the body actually charged with the responsibility of carrying out the hospital policy of the Crown, while judiciously exercising its powers, works in harmony with the hospital committees, and sees that the institutions are efficiently managed and that the interests of the sick, the contributing public, and the Government are protected. The system, on the whole, has met with a very large measure of success.

[The photographs of the Melbourne Hospital and of St. Vincent's Hospital are by Jack Cato, F.R.P.S.]

R. Rössle, writing in *Forsch. u. Fortschr.* (No. 11, 1935), states that since the war a considerable increase of thrombosis and embolism has been observed in a number of countries in Central Europe, and especially in Germany. It has long been known that obese subjects are particularly liable to fatal pulmonary apoplexy as soon as they are confined to bed, and the risk is increased by even otherwise harmless surgical operations. In the years following the cessation of the blockade a large number of persons in Germany became corpulent, and thereby became exposed to the risk of embolic complications in case of illness. It was found that men who died of embolism were on the average 20 kg. heavier, and women who died from the same cause were 12 kg. heavier, than other persons of the same size. In other countries, especially Soviet Russia and North America, obesity for various reasons is not so prevalent, and consequently an increase in embolism has not been observed.

Nova et Vetera

MEDICAL REGISTRATION IN GUERNSEY

The recent murder trial in Guernsey produced many sensations, but not the least of these was the strong objection raised by counsel for the defence to Sir Bernard Spilsbury and Dr. Roche Lynch being allowed to give evidence. It was held that as they had not been registered as medical practitioners in the island they had no more standing or right to give medical evidence than any quack or medicine-man. This might have appeared to those unfamiliar with the old Guernsey law as an unnecessarily discourteous comment on men of such distinction as Sir Bernard Spilsbury and Dr. Roche Lynch, but it was simply a quotation from the local legislation which began with the "ordonnance" of 1777 relating to *practitioners of medicine, comedians, and charlatans*. In that year Monsieur Baillif represented to the Court that charlatans frequently displayed their drugs and physic in public, and undertook to cure divers maladies notwithstanding their total ignorance of medicine and surgery, to the danger of the health and even the lives of the inhabitants of the island. Grouped with these undesirables were persons found to be giving performances and exhibitions in public, so the Court passed an Act prohibiting all such from engaging in their unauthorized practices. In the words of the old ordinance:

"La cour . . . a defendu et defend à tous étrangers d'exercer, sous aucun prétexte, que ce soit, la médicine ou chirurgie ou de distribuer ou administrer aucune drogue ou médicine et à tous comediens, charlatans et autres de faire aucunes exhibitions, *sans avoir obtenu la permission de la Cour Royale*."

A fine of one hundred pounds was imposed for contravention, one-quarter to go to the King, one-quarter to the poor, and one-half to the informer.

Practitioners of medicine remained for 130 years in this quaint assortment of persons requiring licences, but in 1907 they were segregated from comedians and charlatans, and were given a new "ordonnance" all to themselves, the right to practise being granted by the Court only on proof of identity and the appearance of the practitioner's name in the *Medical Register* for the current year. To-day even a locumtenent coming to Guernsey for a few weeks has to appear before the Court and be "admitted." So counsel's objection to Sir Bernard Spilsbury (whose evidence was to be that the wound was not self-inflicted) was not without foundation, and was technically correct, notwithstanding one advocate's contention that "making a post-mortem examination hardly constituted practising medicine or surgery"—at least he hoped not! But the objection was overruled by the Bailiff, and the Attorney-General "generously" promised not to prosecute Sir Bernard for breaking the law.

I question whether so quaint or picturesque a ceremony in connexion with a medical practitioner's admission to practice takes place in any other part of the British Empire. The practitioner desiring registration in Guernsey first calls on H.M. Procureur (Attorney-General) and presents his diplomas. The *Medical Register* is consulted and the practitioner identified. He is notified to attend the next meeting of the Royal Court, to which all licensing matters are referred. The Royal Court is composed of the Bailiff (the president and judge), H.M. Procureur, H.M. Comptroller (Solicitor-General), and not less than seven of the twelve jurats (a permanent jury of men of high educational and social standing who give their services gratuitously). All these officials wear robes, the Bailiff's special robe being trimmed with ermine, and the jurats' being purple, with light shot-silk collar, and sleeve lining. They have high, dark velvet caps—the cap of the French justice of the peace. The general public are admitted.

The proceedings open with the recital of the Lord's Prayer in French by the Greffier (the Clerk of the Court and Recorder). When the time comes for licensing business, the Procureur brings the applicant to the front of the Court and presents him to the Bailiff, assuring him

that he has carefully examined his diplomas, that they are all in order, and he recommends the application. The Bailiff and jurats seated on the bench in a semicircle survey the applicant. The Bailiff asks the jurats on his right if they have any objections. "No"; they are all agreeable; then the jurats on his left. No objections. Then the Bailiff addresses the applicant and says: "You have our permission to practise your profession of medicine and surgery in the States of Guernsey." The successful applicant bows and withdraws.

G. WHITESIDE ROBERTSON.

DOROTHY TEMPLE CROSS RESEARCH FELLOWSHIPS IN TUBERCULOSIS

The Dorothy Temple Cross Research Fellowships in Tuberculosis for the year 1935-6 will shortly be awarded by the Medical Research Council, and applications should be lodged with the Council not later than June 1st.

The object of these fellowships, as defined in the trust deed, is to give special opportunities for study and research to persons "intending to devote themselves to the advancement by teaching or research of curative or preventive treatment of tuberculosis in all or any of its forms." Candidates must be British subjects and must possess suitable medical, veterinary, or scientific qualifications. They must also be able to produce satisfactory evidence of their ability to make good use of the opportunities offered by the fellowships.

The fellowships will preferably be awarded to candidates who wish to make their studies or inquiries outside the borders of Great Britain. They will be awarded for one year as a rule, but in special cases may be renewed. The value of the fellowships awarded will depend in each case upon the standing and qualifications of the candidate, but will not be less than £350 per annum, payable monthly in advance. Travelling and some incidental expenses will be paid in addition. It may also be possible to award a senior fellowship of considerably greater value to a specially well qualified candidate wishing to undertake an intensive study of some particular problem of tuberculosis at a chosen centre of work in another country.

Further particulars and forms of application are obtainable from the secretary, Medical Research Council, 38, Old Queen Street, Westminster, S.W.1.

England and Wales

Treatment of Venereal Diseases

The Ministry of Health has issued a circular (No. 1474) on the subject of congenital syphilis in children, which aims at improving the existing machinery for securing the continued attendance of patients at treatment centres. It contains suggestions under five headings. (1) The value of a properly and sympathetically worded explanation of the nature of the disease, its tendency to remain symptomless for long periods, and the necessity of avoiding the mistake of being deceived into inaction by the absence of external signs is emphasized. Discontinuance of attendance on the part of syphilitic mothers is particularly apt to occur after childbirth, so that special warnings should be given to them towards the end of pregnancy. Health visitors and others are urged to impress upon patients believed or suspected to be suffering from syphilis the need for continuity of treatment. (2) The amenities of the treatment centre should encourage and facilitate the attendance of mothers and children—for example, the sessions should be held at convenient times and outside the ordinary working hours of the patient or his guardian, the time required to be spent by each patient should be as short as possible, and the discomforts of treatment should be reduced to a minimum. (3) Measures for the proper co-ordination of the work of the treatment centre with that of the council's maternity and child welfare and school medical services, as well as with that of general practitioners, should be developed to the fullest extent compatible with the preservation of the confidential character of the personal information obtained. (4) The utilization of properly trained workers, duly appointed as officers of the centre for following up cases, has proved in some places a valuable means of securing the reattendance of patients who have lapsed. It is emphasized that the selection of suitable persons for this delicate work is a matter of the first importance, and the necessity for avoiding breaches of confidence must at all times be borne in mind. (5) Care must be taken that the cost of travelling to and from the treatment centres should not deter patients from attending In the view of the Minister of Health reasonable expenses should be repaid by the local authority in all cases in which the medical officer of health is satisfied that the patient is unable to bear them.

Venereal Diseases in London: Diagnosis and Treatment

Under the arrangements for the diagnosis and treatment of venereal diseases in London, in which six adjoining counties and three county boroughs participate with the London County Council, the number of in-patient days (that is, the number of days of treatment of in-patients) in 1934 at the hospitals receiving grants was 54,089, compared with 52,581 the previous year. The number of new cases was 28,123 (16,064 males and 12,059 females), and of attendances 1,142,287. Of the new cases 12,059 were found to be non-venereal, and of the remainder there were 4,179 cases of syphilis, 11,720 of gonorrhoea, and 165 of soft chancre. Bacteriological specimens examined at the hospitals at the request of, and free of cost to, medical practitioners numbered 37,286. The results of the work done during 1934 showed several satisfactory features. New cases dropped in total by 600, while the number of new cases which proved to be non-venereal has continued to increase. The ratio of total attendances to total new cases has also continued to grow, being now about 40:1.

Health Congress of the Royal Sanitary Institute

A health congress, organized by the Royal Sanitary Institute, is to be held at Bournemouth from July 15th to 20th, under the presidency of the Earl of Malmesbury. The programme will be arranged in sections dealing respectively with preventive medicine; architecture, town planning, and engineering; maternity, child welfare, and school hygiene; veterinary hygiene; national health insurance; and hygiene in industry, in conjunction with the Industrial Welfare Society. Dr. T. Carnwath will preside over the section of preventive medicine, and Dr. T. Orr, medical officer of health for Ealing, will be its secretary. The president of the section of maternity, child welfare, and school hygiene will be Lady Dawson of Penn, with Dr. James Fenton, medical officer of health for Kensington, as its secretary. The section of hygiene in industry will have for its president Lord Trent of Nottingham, and for its secretary Dr. J Macmillan, medical officer of health for Woolwich. There will be special conferences of representatives of sanitary authorities, medical officers of health, engineers and surveyors, sanitary inspectors, and health visitors. Dr. Veitch Clark, president of the Society of Medical Officers of Health, will take the chair at the second-named conference, and Dr. F. T. H. Wood, medical officer of health for Bootle, will be its recording secretary. A health exhibition will be arranged in the Winter Gardens in connexion with the congress. For further information application should be made to the secretary, Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1.

Central Midwives Board

At the April meeting of the Central Midwives Board for England and Wales notification was received that Councillor R. W. Brosch had been appointed by the Association of Municipal Corporations as its representative on the Board for the ensuing year. The Ministry of Health had forwarded a copy of a letter from the British Medical Association stating that at a recent meeting midwives in Stockton-on-Tees had decided that they would not attend cases of abortion unless they had been previously booked, or unless it was a case in which they knew that the fee for services rendered would be forthcoming

or, in doubtful cases, it was paid in advance. As a result of such decision, doctors would be called in direct and not be able to recover their fees—a state of affairs alleged to be not contemplated by Parliament. It was decided to inform the Minister of Health that the Board had always held that a midwife, like a doctor, had the right to refuse to book any case which, on any grounds, reasonable or unreasonable, she did not desire to attend. This view, however, did not extend to cases in which attendance might be demanded on humanitarian grounds, or in respect of which the midwife, as regards attendance, owed a duty to some other body, person, or authority, responsible for the provision of an adequate midwifery service.

A letter was read from the Islington Committee of Co-operation for the Welfare of Mother and Child stating that it had had under consideration the question of home helps being allowed to "wait on" the midwives at confinements instead of attending only after the birth of the child, and asking for the Board's views. It was agreed to reply that in accordance with the Midwives Act, a home help or handy woman, who is not a State certified midwife, is not entitled to be in attendance on a woman in childbirth except under the direction and personal supervision of a registered medical practitioner. In the Board's opinion this statement did not preclude a home help from providing domestic assistance to a midwife and the family.

Approval as lecturer was granted to Dr. Lindsey Willett Batten, Midwives' Institute (in co-operation with the other lecturers at the institute).

Woodhall Spa

A large company assembled at Woodhall Spa on April 27th at the laying of the foundation stone of a new bath establishment by the Princess Marie Louise. Sir Archibald Weigall presided, supported by many parliamentary and public representatives in Lincolnshire, the chairman and members of the Woodhall Spa Urban District Council, Mr. G. B. Earton, chairman of the Woodhall Spa Advancement Association, Drs. Leonard Boys and G. Armour, Dr. Meredith Sanderson, the new director of the Spa, and Dr. Fortescue Fox, representing the British Health Resorts Association, and many members of the Lincoln Division of the British Medical Association. The salt waters of Woodhall have been known for about one hundred years. They rise from a shaft below sea-level, and are rich in chlorides of sodium, calcium, and magnesium, containing also appreciable quantities of iodine and bromine. They are used in the natural state both internally and externally, and as a "mother lye" and by inhalations in respiratory catarrh. Under new ownership the Spa and Bath Establishment have been renovated for the present season, and a small clinic has been added for accessory treatment, including a well-devised system of fango packs. Under the inspiration of Lady Weigall a large new bath establishment has been designed, and is in course of erection in beautiful grounds, now named by the Princess Marie Louise the "Royal Jubilee Park." This establishment will contain, among other special methods of treatment, an extended provision for the treatment of respiratory catarrhs, which has hitherto been little used in England. Dr. Boys, in seconding a vote of thanks to the Princess, spoke of that day as the happiest in his long connexion with Woodhall Spa.

Dr. Fortescue Fox cordially welcomed the revival of Woodhall, in which the British Health Resorts Association was much interested. It was not necessary for a spa always to have something for everybody. The smaller, which might be called the specialist spas, had an essential part in a national scheme of health resorts, and many, in various countries, had obtained a world-wide reputation for particular ailments. Woodhall might perform a national service if it provided manipulation pools and fango for rheumatism, a new system of treatment for catarrh, the old but effectual methods for the relief of painful inflammatory deposits in the pelvis, and he hoped also a rational spa treatment for high blood pressure, which was one of the most serious illnesses of civilized man.

Scotland

New Regulations in Medicine at Edinburgh

At the half-yearly meeting of the General Council of the University of Edinburgh on May 1st certain new regulations of the University Court in regard to medicine were intimated. These included rearrangement of the course in physiology, reduction from twenty to fifteen in the number of meetings in the course of history of medicine, and new regulations for candidates for the M.D. examination. The latter examination, in the case of candidates who did not profess a special subject, will be confined to practical, oral, and written examinations in clinical medicine; for candidates who profess a special subject the examination will be in two parts, major and minor, which may be taken in either of the following forms: (1) major part in clinical medicine, and minor part with a practical and oral examination in a department of medicine professed by the candidate; or (2) major part in one of eight specified branches of medical science, or in some special branch of medical practice in which the candidate has been engaged for a number of years, with a minor part in clinical medicine. The courses for the diploma in psychiatry will be as follows: anatomy of nervous system, twenty hours; physiology of nervous system, twenty hours; psychology, fifty hours; neuropathology, forty hours; clinical psychiatry, 115 hours; and clinical neurology, eighty hours.

Edinburgh University Chemical Society

At a luncheon on April 20th, held to celebrate the diamond jubilee of the Edinburgh University Chemical Society, Professor James Kendall of the chair of chemistry at Edinburgh said that the original foundation of this society went back, not to 1875, but to 1785, so that it was the first chemical society in the world. Examination of the register of students at the University in 1785 had established that out of fifty-nine members of the Chemical Society fifty-three were students attending Professor Joseph Black's class in chemistry at Edinburgh University. How long the society survived after 1785 they did not at present know, but they hoped it might be possible to locate a descendant of one of the original members who was in possession of some record of its proceedings and history. It was possible that the Chemical Society of Philadelphia, which claimed to be the first chemical society in the world, might be an offspring of the original Edinburgh Chemical Society, because the University of Pennsylvania had been instituted in 1765, under strong Edinburgh auspices, and the coat of arms of Edinburgh University was still to be seen above the entrance to one of its original buildings.

Medical Exhibition in Glasgow

A medical exhibition, organized on the lines of those held annually in London for some thirty years past, will be held in St. Andrew's Hall, Glasgow, from May 13th to 17th. Among the exhibits of therapeutic preparations vitamins figure largely. There are tablets of crystalline vitamin C manufactured from natural sources, and of pure crystalline vitamin D; extracts of beef and yeast with high vitamin B content; and capsules of concentrated extract of fish liver, etc. The increasing use of endocrine preparations is evident from the large number that are included, especially those for the treatment of ovarian and uterine conditions—such as gonadotropic hormones, suppositories of oestrin, benzoate of folliculin in sterile solution, corpus luteum hormone, etc. New preparations of diphtheria toxoid, of bee venom for use in rheumatism, of tuberculin, and of meningococcus antitoxin are also shown. Among new remedies are a stimulant of peristaltic and muscular action similar to physostigmine for use in wasting muscular diseases, a solution of calcium salt of laevulinic acid for conditions of calcium deficiency and haemorrhagic states, and a glucoside preparation isolated from *Digitalis lanata*. Among surgical exhibits are: an improved type of plaster-of-Paris dressing, flexible adhesive cloth for retaining dressings, and chromium-plated hospital furniture. Ophthalmic apparatus and recent medical books are also shown.

Reports of Societies

POLIOMYELITIS IN DENMARK: THE 1934 EPIDEMIC

A special meeting of the Section of Pathology of the Royal Society of Medicine was held on April 30th, when Dr. CLAUS JENSEN of the State Serum Institute, Copenhagen, gave a preliminary report on the epidemiology, clinical features, and use of convalescent serum in the 1934 epidemic of poliomyelitis in Denmark.

Dr. Jensen said that in Denmark during the latter half of 1934 nearly 4,500 carefully diagnosed cases of poliomyelitis were admitted to hospital, and of these 4,000 were in the early systemic phase of the disease. Unlike most of the other large epidemics elsewhere, this occurred in a population racially homogeneous and very stable as regards movement within the State. The members of the medical profession who undertook the diagnosis and treatment of cases had all received their training at the same university. Owing to the long and systematized efforts in public health administration, the medical profession and the general population alike were amenable to centralized control and uniformity of policy. This had been specially noticeable in the ease with which convalescent serum for therapeutic use had been collected and distributed. All the cases were hospitalized and treated at State expense.

STATISTICAL REVIEW

Statistics of poliomyelitis were available in Denmark from 1909, but until recent years these related only to the paralytic cases. There were rather heavy outbreaks in 1911, recurring in the autumn of the three following years, again in 1919, and in 1929. In August, 1933, a localized epidemic occurred in the north of Denmark, and in this epidemic the first use was made of convalescent serum, and the attention of the profession was called to the possibility of serum therapy if the patients were hospitalized at the early non-meningitic stage. Sporadic cases occurred throughout the ensuing winter, the number being about four times greater than the normal sporadic incidence. It was therefore anticipated that the number of cases would reach epidemic proportions in the summer of 1934. During the first three weeks of August, 1934, the number of reported cases rapidly increased to over 100 in a week, and the peak was reached in the middle of September, when 650 cases were reported in a week, after which there was a sharp decline. From the beginning of June until the end of December 4,451 cases were reported, of which approximately 600 were paralysed. The death rate was 19 per 1,000. An unusual number of adults of both sexes went down with the disease; about 33 per cent. of those affected were above 16 years of age. The same feature was noted in the outbreak in California, which occurred at about the same time; there 38.8 per cent. were above the age of 15. In attack rate, paralysis rate, and death rate males were in excess of females—the figures being respectively 117–100, 137–100, and 162–100—although the proportion of sexes in the total population of Denmark was 96 males to 100 females. The oldest patient was a male aged 60, who died following paralysis; the youngest was an infant of 3 months. The mode of spread seemed to be contact with human carriers, and, to a much less extent, with recognized cases of the disease. There was no indication that the milk or water supply had any significance. Unlike California, very few cases—twenty-three in all—were reported among hospital and nursing personnel.

The hospital figures which Dr. Jensen was able to produce and analyse related to 3,938 cases in twenty-six hospitals, all of which adopted the same form of record. The clinical features were as follows: fever (rectal temperature above 37.6° C.) was present in 89 per cent. on admission to hospital; spinal rigidity or the "spine sign" was present in 85.4 per cent., neck stiffness in 34.9 per cent., facies poliomyelitica in 57.9 per cent., reflex disturbances in 33.4 per cent., and mental dullness in 11.6 per cent. No significant difference was found with regard to blood grouping in the poliomyelitis cases as compared with the general population.

USE OF CONVALESCENT SERUM

With regard to the convalescent serum, the State Serum Institute had collected and stored 10 litres of serum obtained from thirty-seven cases in the 1933 epidemic, and small depots were established at regional hospitals in June, 1934. This supply, however, was quickly exhausted with the quick rise in incidence in the later summer, and the problem of obtaining serum became acute. The supply was obtained from three different types of cases: the frankly paralytic, the non-paralytic, and the aborted. From the first of these classes the serum showed between 1,000 and 2,000 protective doses per c.cm. (as gauged by serum-virus titration in monkeys); from the second, between 2,000 and 10,000; and from the third, some 150,000. The best donors apparently were those who represented aborted cases, and as aborted cases were numerous in any epidemic the problem of obtaining a sufficient supply of serum of high protective value should not be difficult. As general systemic infection was being dealt with, intravenous treatment seemed to be the method of choice, and this was used in the majority of cases, the exceptions being treated by intramuscular injection alone. Intraspinal injection of the serum was very rarely used. Owing to the small amount of serum available at the beginning of the epidemic, the prophylactic use of the serum had to be prohibited. In the Californian epidemic it was used prophylactically, but with indifferent results. As for strength of dose, the minimum for one injection was 30 c.cm. in children, and 60 to 70 c.cm. in adults. Practically every patient admitted in the pre-paralytic state was treated, it was not possible to provide adequate controls, and therefore it could not be said whether the serum-treated cases progressed more favourably than those that had no serum. Very few unfavourable reactions were observed; in about eight cases there was a slight and transitory untoward effect. Many skilled observers noted a prompt improvement in the general condition of the patient following serum therapy. It was very difficult to say, however, whether the serum was able to protect against paralysis. Of the cases treated within the first two days—namely, 2,367—only 127 (or 5.4 per cent.) developed paralysis, whereas of the cases treated on the third or subsequent day—namely 625—110 developed paralysis (17.6 per cent.). This suggested that serum given after the second day had little effect.

EXPERIENCES ELSEWHERE

Dr. G. H. EAGLES gave the results of titration of convalescent serum obtained from Denmark, using serum-virus mixture intracerebrally in monkeys. The results, however, were variable and perplexing, and he hoped to carry the tests further and ultimately to arrive at some definite conclusion. He had been asked whether normal serum had any protective value. There was a good deal of evidence that so-called normal serums protected to a certain extent. Their protective value was in many cases almost up to the level of that of the convalescent serum.

Dr. H. S. BANKS described an experience of an outbreak of poliomyelitis in Leicester city and county in 1926. This outbreak, which appeared to have escaped medical literature, began in mid-July and had its peak in September. There were about eighty paralytic cases in the city and eighty more in the county. There was no apparent connexion between the cases. No two cases occurred in one house: it was rare to find two in one street in the city or in one village in the county. The only theory that seemed to fit in with the facts was that of an enormous amount of subliminal infection. The severity of the symptoms and the extent of the early paralysis was no useful guide to prognosis. Of those that recovered completely about half suffered initially from widespread paralysis. The results in 1931, after five years, were:

Completely recovered	27	per cent.
Permanent paralysis	54	,,
Died of paralysis	11	,,
Died (other causes)	3	,,
Untraced	5	,,

Dr. E. W. N. HOBHOUSE said that there were two views as to aetiology: the older one, that the process occurred

in three stages—systemic invasion, invasion of the meninges and subarachnoid space, and the stage in which the nervous system was affected ; the other, that poliomyelitis was primarily an infection of the nervous system, and that the initial symptoms were due to nervous involvement and should not be described as systemic. He gave reasons why he found difficulty in accepting the latter view.

Dr. J. D. ROLLESTON narrated particulars of eighty-three cases diagnosed as acute poliomyelitis at the Western Hospital, London, from 1927 to 1934. The great majority of cases occurred in the first five or six years of life. The occurrence of multiple cases in a family was rare even in an epidemic, and in these sporadic cases was not found at all. In sixty-three of the cases the legs were affected ; the arms were less frequently attacked, and the facial muscles only in five cases. Two deaths occurred, both from ascending paralysis. Convalescent serum was given in seven cases, but one of these died forty-eight hours after injection from acute bulbar paralysis, and in another case, though death did not occur, the paralysis became more extensive. The results of such serum therapy were quite inconclusive.

Dr. E. W. GOODALL commented on the remarkable increase in the number of persons affected who were of, or approaching, adult age. Dr. LEONARD FINDLAY regretted that the Danish authorities did not take advantage of the wonderful opportunity afforded by the 1934 epidemic to decide, more or less definitely, whether serum treatment was or was not of value. In most epidemics it appeared that all cases were treated, and, in the absence of controls, it could not be said whether the serum was of advantage.

Dr. JENSEN, in reply, said that he had been interested to learn of the Leicester and Leicestershire outbreak, and to know that it showed the same seasonal curve as the one in Denmark. With regard to the increasing number of older persons affected, in the outbreak of 1919 in Denmark the proportion of paralytic cases over the age of 15 was 10 per cent. ; in the 1929 outbreak this had risen to 25 per cent. ; and in the 1934 outbreak, to 27 per cent.

THE MENTALLY RETARDED CHILD

At a meeting of the Manchester Medical Society held on April 3rd, with the president, Dr. E. BOSDIN LEECH, in the chair, Dr. H. HERD read a paper on "The Mentally Retarded Child."

Dr. Herd alluded to the absence of reference to mental retardation in general medical textbooks, except in its more extreme forms of low-grade defect, and to the misleading impression conveyed by pictorial representations of the more gross pathological types. The exact meanings to be attached to the terms "retarded," "defective," "dull," and "backward" were discussed, and emphasis was laid upon the two distinct legal significations of the term "defective" as used in the Education Act and the Mental Deficiency Act, which made it possible for a child to be certifiable under the former but not under the latter Act. For the former Act educability was the main criterion, for the latter social functioning. A child's social possibilities were not always capable of estimation until he had been under observation for some time, but the necessity for his education on special and individual lines might be determined by one examination ; that education should not be delayed, and might indeed be a factor in determining his social possibilities later. The position, however, was anomalous and should be rectified, as was suggested in the Wood report, by abolishing the use of the term "defective" for educational purposes, while at the same time still continuing special education, and indeed extending it to higher grades of the "retarded," of whom the so-called educational defective was only a section. The old classification of defectives into "primary" and "secondary," upon a basis of causation, was now being abandoned in favour of Dr. E. O. Lewis's suggestion of a division into the "pathological," in the case of which mental defect was only part of a physical and neurological picture, and the "subcultural," which constituted the lowest end of a normal frequency curve of intelligence. The pathological were for the most part idiots and imbeciles, the subcultural mostly feeble-minded. Special schools were largely monopolized by subcultural cases. The pathological more frequently required institutional care.

The pathology of the condition was only definitely known in regard to gross pathological cases, and there was no justification for assuming that the findings, even in lesser defects, applied to "subculturals," especially of higher grade. For diagnosis a developmental history was of significance, retardation in the acquisition of speech being of special importance. Inquiry into social reactions to family life, to school life, and to street life often yielded valuable information. The so-called "stigmata" of defect had been overestimated in the past. The educable feeble-minded and retarded could only be assessed for educational possibilities and grading by mental methods, particularly standardized test scales of the Binet type. For very young children these had been supplemented recently by the Merrill-Palmer tests, and those of Arnold Gesell and Charlotte Bühler. A short description was given of different types of test included in the Terman intelligence scale, and the significance of I.Q.s was indicated both from the point of view of education and of after-life. A demonstration was also given of certain performance tests—the Porteus mazes, the manikin, the feature profile, the picture completion tests, and others. The latter were often useful in differentiating deafness from defect in a young subject. Retardation due to emotional causes might also be suspected when "scattered" results were obtained with the test scales.

A short outline was given of the legal provisions relating to the examination and certification of defectives under both the Education and the Mental Deficiency Acts. The methods and types of training in special schools were briefly described. For fuller efficiency, however, it was necessary to take into consideration the needs of the district in which a school was situated, and to prepare the children for this work in the later years of their school life. The educable defectives could be educated and even socialized in behaviour in such a way as to make them useful members of society. Sterilization was not going to rid the nation of defect, and the possibilities of the defective must therefore be fully explored.

At a meeting of the Society of Public Analysts on May 1st, Drs. G. ROCHE LYNCH and R. H. SLATER gave an account of the toxicological examination in a fatal case of poisoning by meta fuel. In the method of analysis used metacetaldehyde was converted, by distillation with steam in the presence of sulphuric acid, into acetaldehyde, which was determined in the distillate by oxidation with standard dichromate. When taken by the mouth meta fuel is slowly polymerized, and in the body it readily forms non-volatile compounds. Drs. Lynch and Slater also described a crystalline putrefaction product of toxicological significance. A crystalline para-phenylpropionic acid was formed by anaerobic putrefaction in a body which had been buried in an unsealed lead coffin, and had consequently lain for a considerable time under water without exposure to the air. This compound was extracted with ether from the acid aqueous liquid obtained in the Stas-Otoo process, and until its identity was established it was suggestive of the presence of one of the barbituric acid derivatives. Mr. T. E. WALLIS exhibited a counting-field finder. This is a device to enable the microscopist to examine a number of fields in selected positions in a microscopical mount without the use of a mechanical stage. Upon a piece of thin cardboard is drawn a rectangle 3 in. by 1 in., and above and below and to the right and left of this rectangle lines are ruled at distances corresponding with the distances in millimetres of the selected fields from two diameters intersecting at right angles at the centre of the mount. By moving the slide until its edges coincide with each of the lines in turn it is possible to bring the selected fields into view in regular succession. The card has a circular hole, 1 inch in diameter, at the centre, and it can be attached to the plain stage by clips or by an adhesive.

CORRESPONDENCE

Poliomyelitis in Boarding Schools

SIR,—Dr. R. W. Fairbrother, in his interesting paper in your issue of May 4th, mentions the problem of the control of poliomyelitis breaking out in a boarding school. He states (p. 917) that "the closure of the school and the subsequent dispersal of the scholars will lead to wide dissemination of the virus," and from the context we understand that in his opinion this procedure favours further and more scattered epidemics of the disease. As is well known, the plan of closing boarding schools infected by poliomyelitis has been adopted in this country on several occasions in the past few years, and the point is, theories apart, have the anticipated ill-effects followed this practice? I am under the impression that, whatever ought to have happened, no disastrous outbreaks have in fact been originated in this way, but facts rather than impressions are needed to decide this most important and practical matter. I therefore write to ask Dr. Fairbrother to state the facts which can be taken to prove the reality in practice of the danger which he anticipates.

It is reasonably certain that parents will not consent to keep their children at a boarding school infected with poliomyelitis. They argue, quite plausibly, that if further cases are to be anticipated at the school, since it is impossible to isolate every child in the school, with each fresh case or crop of cases their children will pass into fresh periods of danger; whereas if removed and isolated at home no further danger is to be feared once the first period of quarantine is at an end. Before parents can be expected to see any other side of the question very cogent arguments will need to be adduced. Does the experience obtained from the study of boarding-school epidemics of poliomyelitis in this country provide such arguments?—I am, etc.,

London, W.1, May 6th. REGINALD MILLER.

Serum Treatment of Typhoid

SIR,—According to the report in the *Journal* of May 4th of the discussion on the treatment of typhoid fever by a specific serum, which took place at a meeting of the Royal Academy of Medicine of Ireland on April 5th, there was one important point upon which none of the speakers, as reported, touched—namely, the specificity or non-specificity of any favourable result which was observed to occur.

As Dr. Parsons pointed out in the discussion, this is not the first attempt to treat typhoid with a specific serum. Before 1907 Chantemesse (not Champtemase, as the report has it), in Paris, claimed to have succeeded, where other bacteriologists had failed, in making a typhoid exotoxin. With this he immunized horses and used their serum for the treatment of patients. He administered very small doses, a few drops only, and claimed to have reduced the fatality of the disease from 17 to 4.3 per cent. (*Sérothérapie de la fièvre typhoïde*, Paris, 1907). Chantemesse's serum was not available in this country. In 1908 the late Dr. Allan Macfadyen of the Lister Institute prepared, by grinding up typhoid bacilli by a special method, a thick fluid which he called typhoid plasma. This plasma presumably contained typhoid endotoxin. With it he, and after his death Professor Tanner Hewlett, immunized horses. Their serum was used as a therapeutic agent at the Eastern Hospital, Homerton, and also at other hospitals. Twenty-six patients were treated at the Eastern Hospital, but in only seven of them was there, in my opinion, any beneficial result. In two the disease ended by a crisis immediately after the injection of the serum, an extremely rare event in typhoid fever (*Proc. Roy. Soc. Med.* (Med. Sect.), 1909, p. 245).

A few years after this the treatment of typhoid by vaccines (*B. typhosus*) was introduced, and at Professor Hewlett's suggestion I tried Macfadyen's plasma as a vaccine. I suppose, though in this I am open to correction by the bacteriologists, that the plasma would have contained the various antigens, including O and Vi. Here again I met with two cases in which the disease was cut short by a crisis. In 1915, at the Queen Alexandra Hospital of the Friends' Ambulance Unit at Dunkirk, Dr. Gillett of Oxford and I treated several cases of typhoid and paratyphoid with vaccines (bacilli), and again in some of the cases with what we believed to be successful results, including cases in which there was a termination by crisis. Since that year the treatment of typhoid not only by vaccines, but by various proteins—for example, milk, casein, and normal horse serum—has in several hands given similar results—that is to say, beneficial results have been obtained by protein-shock therapy. Like effects have been noticed in respect of undulant fever. So that, in estimating the results of Dr. Felix's serum, this non-specific action has to be considered.

It has also to be remembered that very good results have from time to time been claimed for methods of treatment other than by specific sera, vaccines, and proteins, and notably for the bath treatment. Nearly forty years ago Dr. F. E. Hare, then of Brisbane, claimed to have reduced by that method the fatality from 14.8 to 7.5 per cent. (*The Cold Bath Treatment of Typhoid Fever*, London, 1898, p. 104). I have had considerable experience of the bath treatment as carried out by Hare, and I believe it to be of value; but neither with it nor with any other except the serum and vaccine (protein) treatment have I seen a case cut short by crisis, which is the only beneficial result I have been able certainly to attribute to the method last mentioned; and that result was obtained in only a few of the cases. It is many years now since I had the opportunity of treating a severe case of enteric fever, but from the experience to which I have referred above I came to the conclusion that in the direction of protein-shock therapy lay the most hopeful line of investigation for obtaining a satisfactory treatment.—I am, etc.,

Hampstead, May 6th. E. W. GOODALL.

The Osteopaths Bill Inquiry

SIR,—Now that the Osteopaths Bill has, for the time being at any rate, been withdrawn, may I be allowed to make a few comments upon the evidence which has recently been given before the Select Committee.

Surely a more unintelligent Bill has never been presented to a British House of Parliament. It was introduced by a group of Peers who did not even know the meaning of the word "osteopath," and who were completely ignorant of the implications of the Bill. It was opposed by a number of medical witnesses who appeared to be almost equally ignorant of the meaning of osteopathy, and who were quite unable to appreciate the trick which was being played on them. The Osteopaths Bill staked its all on the deliberate misrepresentation that osteopathy is the same thing as manipulative surgery. Time after time the medical witnesses played into the hands of the osteopaths by allowing this falsehood to pass unchallenged, and even by contributing to it. For instance, Sir Henry Brackenbury was asked why Dr. Axham was struck off the *Medical Register* for giving anaesthetics for an osteopath. Instead of answering promptly that Dr. Axham never in his life gave an anaesthetic for an osteopath he dilated upon the iniquities of "covering." He was asked whether the osteopath does good work, and he

replied that the osteopath does good work in a limited sphere. He was then asked, "In what sphere?" and he replied, "In the sphere of the manipulative surgeon, mainly referring to dislocations and abnormalities of the joints"—and he instanced particularly abnormalities of the knee-joint and elbow-joint (which has nothing to do with osteopathy). Sir Morton Smart was asked whether he agreed with the statement that the practice of osteopathy is identical with manipulative surgery, and, to my amazement, he replied, "That is absolutely my view."

I can only say that it is not my view, and, at the risk of being tedious, I would like to repeat what osteopathy is and what it is not, for presumably it is only a matter of time before this impudent Bill is reintroduced in one form or another. Osteopathy has absolutely nothing to do with manipulative surgery. It is true that many osteopaths do a certain amount of straightforward manipulation of joints other than those of the spine, but that is not their creed, and it is *not* osteopathy. Osteopathy is a typical American money-making stunt. It is a confidence trick like Abrams's box and many others that have emanated from that country. It was initiated just over sixty years ago by an obscure American doctor called Still, who, without reason or attempt at justification, announced that practically all diseases are due to pressure on the blood vessels in the intervertebral foramina brought about by displacements or "lesions" of the vertebrae. Incidentally, these lesions are so subtle that they cannot be detected clinically or by *x* rays by anyone who is not an osteopath (or a chiropractor). Still then founded his School of Osteopathy, which ran without opposition for twenty years. This was too much for another obscure American (not a doctor) called Palmer, of Davenport, Iowa, who, also without reason or justification, announced his "discovery" that 95 per cent. of all diseases are due to pressure, not on the blood vessels, but on the nerves in the intervertebral foramina brought about by the same imaginary displacements of "lesions" of the vertebrae. So Palmer and his son founded a School of Chiropractic, which in the country of its birth has far outgrown the School of Osteopathy. The more enlightened osteopaths of to-day have to a considerable extent repudiated these preposterous creeds, and, while still maintaining the fiction of the "lesion," they have made the most strenuous efforts to find other justification for their empirical manipulations of the spine. More and more have they tried to bring their practice into line with manipulative surgery, and, as I have already stated, it was on the deliberate misrepresentation that they were practitioners of manipulative surgery that they staked their impudent claim before the House of Lords.

In the recent inquiry it was frequently stated that the medical profession had not taken the trouble to investigate the "osteopathic theory." This is absolutely untrue. Orthopaedic surgeons, who are particularly concerned with the surgery of the bones and joints, have investigated the "osteopathic theory" up to the hilt. It is true that we have not investigated their pathological material, because osteopaths have none to produce, and for that simple reason they have not investigated it themselves. But we have read their literature, we have met them, discussed with them, and we have done all that was humanly possible to discover whether there is the slightest justification for their claims. Many years ago the Orthopaedic Section of the Royal Society of Medicine invited an osteopath to demonstrate the osteopathic "lesions" to them. He came, he demonstrated, and we regretfully came to the conclusion that his "lesions" were purely imaginary. After all, some of us have had a good deal of experience of spinal deformities, and we do know a normal spine when we see one. Ten years ago I read the first five *Bulletins* of the A. T. Still Research Institute. These documents are an insult to the meanest intelligence, and the more educated osteopaths are thoroughly ashamed of them. They were a revelation to me of the way in which a subject can be written up in pseudo-scientific language for propaganda purposes. They contain a mass of irrelevant and ignorant statements, incredible "observations," and unwarranted deductions beside which the more commonplace quack advertisements pale. They do not contain a single statement or observation which any educated person would accept as of the slightest scientific or practical value.

I would appeal to medical men not to be afraid of osteopathy. It has nothing to do with manipulative surgery. It is a fraud based on credulity and neurosis, and, like many others, it originated in a country where the pace of life is fast and hysteria is rampant. The osteopaths here hoped to ride home on the backs of Barker and other decent British bone-setters. This time they have failed, but, I think, only at the last fence. I have it on good authority that if at the outset a medical Peer had told the House of Lords in simple language what osteopathy is *and what it is not*, this Bill would never have passed its second reading.—I am, etc.,

London, W.1, April 26th. A. S. BLUNDELL BANKART.

*** Mr. Blundell Bankart's principal point was quite clearly made in a leading article in the *British Medical Journal* of January 5th, 1935 (p. 20), which stated: "Osteopathy is not the manipulative surgery which is practised by orthopaedic surgeons and 'bone-setters.' . . . The osteopath is a practitioner of a new system of medicine based upon the theorizings of the founder of osteopathy, the late Dr. Andrew T. Still of Kansas, U.S.A."—ED., *B.M.J.*

Placental Serum in Measles

SIR,—The letter of Dr. A. G. Auld in the *Journal* of April 27th is of interest in drawing attention to the employment of placental serum in the prophylactic treatment of measles by Dr. Y. A. Finkelstein. C. F. McKhann and Fu Tang Chu of Boston (*Amer. Journ. Dis. Child.*, 1933, xlv, 475) described their use of human placental extract in the treatment of measles, and noted definite evidence of the modification of the disease when used prophylactically. These authors give references to the work of Fischl and Wimscheim, who in 1895 demonstrated the presence of diphtheria antibodies in placental extract, and of Joomey and August, who in 1929 showed the presence of immunity in placental extract to scarlet fever; while in 1930 Aycock and Kramer demonstrated immunity production by placental extract in cases of poliomyelitis. McKhann and his collaborators describe the method of utilizing the globulin fraction of placental extract, and have demonstrated its greater antibody content.

Following their method, one has, during the past twelve months, employed placental globulin extract in numerous cases where deficiency in general antibody is obvious. The advantage of their method is that by dialysation and the employment of merthiolate a sterile preparation is obtained which can be concentrated and standardized without the employment of heat. It is entirely non-toxic, and so far has in no case been associated with any evidence of anaphylaxis, as the albumin fraction of the placental extract is not employed. Though one has not had the opportunity of using this preparation in measles, it has been of definite therapeutic help in cases of encephalitis and as a general means of raising antibody response in cases of gross infection with marked debility; one has also employed it with apparent helpfulness in cases of malignancy, associating its effect with an antigen prepared from fresh carcinomatous tissue. In asthma,

also, it has been of value, and can be used along with desensitizing agents indicated according to the particular allergic sensitiveness of the individual concerned.

The placentae are always collected as freshly as possible, and the maternal blood is allowed to drain away. The extract represents foetal blood and plasma, and the rationale of its employment is that it probably represents a concentrated extract of foetal blood globulin and therefore gives the opportunity of employing a human preparation of antibody material, easily obtained and associated with the known immunity of the newborn child. The standard preparation which I employ contains 600 mg. of globulin per cent., and from 1 to 5 c.cm. represents the usual dose injected subcutaneously. When one considers the enormous amount of placental material which is being destroyed daily there would appear, in view of the observations referred to above, to be the possibility of using this valuable human material, either as whole placental serum or as a globulin extract, in many cases in which immunity to infection is deficient and antibody help may be of value, and possibly in cases for which at the present time ordinary blood transfusion is considered necessary.—I am, etc.,

Liverpool, May 1st. E. CRONIN LOWE.

The Malaria Epidemic in Ceylon

SIR,—In Dr. Wigglesworth's address to the School of Tropical Medicine, reported in the *British Medical Journal* of March 23rd, he asks the question, "Would it have been possible to prevent the epidemic of malaria in Ceylon?" In the interests of future methods for malaria control, I venture to represent that the answer to that question is in the affirmative. It might have been possible to prevent the epidemic, but not by our present accepted methods of malaria control. Accepted methods fail absolutely in the face of an epidemic of these proportions. It is futile even to attempt to use them, and they have to be abandoned. It is obvious, as Dr. Wigglesworth says, that

"To have prevented the breeding of *A. culicifacies* over three hundred miles of river and an indefinite area of streams by canalizing and oiling the pools would have been a far vaster undertaking than anything so far attempted for the control of rural malaria."

When Ross made his discovery thirty-five years ago that malaria was carried by mosquitos public health authorities, naturally and rightly, concentrated on anti-larval work, oiling, filling, canalization, etc. The adoption of these measures resulted in a reduction in the incidence in every malaria-infested country, and we are not likely to forget that anti-larval measures made the building of the Panama Canal possible and provided an object lesson in malaria control for the whole world. Experience, however, has shown us that, valuable as anti-larval measures were, and continue to be, their application is limited by the financial factor, and also that, under conditions such as obtain in the present epidemic in Ceylon, their application is impossible. New knowledge that has become available during the past decade makes it clear, however, that we need to perform a *volte face* in regard to our methods of malaria control and to concentrate on the destruction of the infected mosquitos as our *primary* measure of control.

In the past we have concentrated on anti-larval measures because we argued that it is possible to abolish breeding places, but impossible to destroy swarms of adult mosquitos. At first sight this argument would appear to be unassailable, and it has been so regarded. The present epidemic in Ceylon proves, however, that conditions may, and do, arise under which it is hopeless even to attempt control by anti-larval measures. We are faced, therefore, with the alternative of waging war against adult mosquitos, which has hitherto been regarded as even more hopeless.

It is at this point that the new knowledge comes to our aid. I allude to the knowledge obtained by Colonel S. P. James and P. G. Shute in the course of their extensive research work on the potential infectivity of mosquitos. The knowledge so gained indicates that we have in the past been wasting much of our ammunition, that where funds and staff are limited these can be employed to much better purpose if we concentrate our attack on the 5 per cent. of infected mosquitos rather than on controlling the 95 per cent. which, though equally irritating, are not equally dangerous. James and Shute have shown that malaria is not so easily carried as we have believed, that not all persons who suffer from malaria are equally infective to mosquitos, and that, generally speaking, it is necessary for the mosquito to feed several times on the infector before it becomes itself infective, and, further, that it is necessary for it to remain near by and to continue to feed on blood in order for the cycle of development to continue satisfactorily in the mosquito. Their experiments indicate that only about 5 per cent. of mosquitos fulfil all necessary conditions and become infective for the rest of their natural lives. The importance of this factor can hardly be over-estimated.

In the light of this knowledge it appears that only about 5 per cent. of potentially infective mosquitos which emerge in nature do in fact become infective, and that these 5 per cent. are located almost exclusively in the infected houses and their immediate vicinity. It is apparent, therefore, that not only is it possible, but it is imperative, that we should concentrate our efforts on the destruction of these infected mosquitos in the houses as our *primary* measure of malaria control, while continuing the usual anti-larval methods, radiating out from the house as centre, as a secondary measure so far as funds and circumstances will permit. This method can be carried out with very little expense. It needs only supplies of insecticide and flit-guns for spraying, the augmentation of existing staffs of sanitary inspectors in emergencies by the addition of unskilled labour, which is immediately available, to visit, spray, and destroy mosquitos in infected houses throughout each village once a week as part of their already established routine inspections, while a desirable but not absolutely necessary adjunct would be the supply of mosquito traps to facilitate the collection and destruction of the mosquitos. In places where malaria is endemic a system of notification would indicate early epidemic foci on which to concentrate our efforts.

I have introduced this method on an admittedly small-scale experiment here in Antigua, and I have been fortunate in climatic conditions which have provided two successive years with almost identical rainfall, and in the second of these years which began five months after the war on infected mosquitos in the houses had begun, the gratifying result was demonstrated of a reduction of malaria incidence by about 40 per cent. and a corresponding reduction in the death rate. I feel convinced that if public health authorities will adopt this revolutionary method and organize malaria control measures on a basis of (1) destruction of infected mosquitos in the houses, (2) anti-larval measures, and (3) treatment of subtertian convalescent cases with a course of plasmoquine, when possible under medical supervision, in order to destroy crescents and so render the patient non-infective, the result would be a very marked reduction in the incidence of, and death rate from, malaria. It should prevent the possibility of the occurrence of an epidemic of the proportions of the Ceylon epidemic, besides effecting very considerable economy in public health administration by limiting the range of expensive engineering anti-larval measures and reducing the necessary expenditure on quinine. Whatever good results may be achieved by the application of this method, the credit must go to Colonel

James and his assistants for the immense amount of work which has made this basis of knowledge available, work which I consider to be second only in importance to that of Ross in the war against malaria.—I am, etc.,

W. M. McDONALD, M.R.C.S., L.R.C.P.

Antigua, B.W.I., April 16th.

A Link with Trousseau

SIR,—I have read with much interest your report of Dr. J. D. Rolleston's paper on Trousseau, in the *Journal* of April 20th (p. 849). I should like to take this opportunity of mentioning the part played by my revered teacher, the late Sir Clifford Allbutt, in making known Trousseau's views in this country.

The following words are taken from a letter of Allbutt's quoted by Sir H. Rolleston in his *Life of Sir Clifford*: "I had the honour of introducing Trousseau's paracentesis (of the chest) into the Leeds Hospital (and so into England?)." Allbutt spent the year 1860 in Paris, attending the clinics of Trousseau and Duchenne. In 1864 he became honorary physician to the General Infirmary, Leeds, and ten years later I had the inestimable advantage of coming under the influence of his teaching. Nothing has left a more vivid impression on my mind than his frequent references to his master Trousseau. His comments on clinical cases were often prefaced by the words, "As Trousseau used to say." The practice of aspiration of the pleural cavity was by this time well established, and Dieulafoye's instrument was the one in general use. There was still in many quarters a reluctance to make use of the new method, and preliminary treatment of blistering the chest wall was quite common. I well remember the case of a man with a pleural effusion for which Allbutt advised aspiration, which the man refused. Allbutt gave him a rather severe reprimand, an unusual thing in one who was so uniformly courteous and approachable.

I will recall one more incident in which I was personally concerned. Dr. Rolleston mentions Trousseau's advocacy of cold affusions in scarlet fever. This was no doubt the germ of the cold bath treatment of fevers, a practice enthusiastically taken up by Allbutt. It so happened that during my student days, at the age of about 20, I was placed in charge of a private case of scarlet fever in a girl of about 10 years old. Allbutt was called in consultation, and instructed me how to give a cold bath, leaving me to carry out the procedure single-handed. I did not much relish the responsibility. The temperature was not hyperpyretic, and at the least sign of a fall I was glad to get the patient safely back to bed.

The seed sown by Trousseau fell on fertile soil in Allbutt's acute and perceptive mind. If the one was a great Frenchman the other was, in the words of the late Dr. A. G. Barrs of Leeds, "the most attractive clinical teacher I have ever known" (quoted by Rolleston, p. 89).—I am, etc.,

Nottingham, April 29th. C. H. CATTLE.

Tuberculosis in Home-contacts

SIR,—Dr. Jessel's letter (*Journal*, April 20th, p. 852) opens up a most interesting point. We learn that in 15 per cent. of cases of pulmonary tuberculosis instances of secondary cases occur in the household, and that the average interval between the discovery of the primary and secondary cases was three and a half years. Here is a statement of fact, and it is clear that if we do possess any means of preventing these secondary cases from occurring three and a half years afterwards we should make use of it. In the *Medical Press and Circular* of December 12th, 1934, Dr. Gelpke, a Swiss school doctor, claims that he has protected children living in close contact with cases of pulmonary tuberculosis by means of an anti-tuberculous blood plasma, which is given by the mouth. On the Continent a number of doctors use B.C.G., and claim that it protects these cases. Here in this country other doctors claim that they have protected these "contacts" by means of a tuberculin treatment.

Surely the time has come to put these various claims on behalf of a specific treatment for protecting "contacts" to the test by some quite independent worker, and it seems that Dr. Jessel, on account of the work he has already carried out, is the right person to undertake this work. There are a number of our big towns with higher mortality rates from tuberculosis than the average for the whole country, and it would be a great help if some specific means could be found that would reduce the number of new cases in those towns. In Leeds it is stated that some 6 per cent. of new "contacts" examined were found to be definitely tuberculous, and if Dr. Jessel is right a further number of secondary cases will be found in about three years' time.—I am, etc.,

Wedmore, April 25th. S. G. TIPPETT.

Analgesia in Labour

SIR,—In Dr. J. E. Stacey's article entitled "Analgesics in Labour," published in your issue of April 20th, I am credited with claiming that gas and air is valuable only in the second stage of labour or when the pains are particularly strong at the end of the first stage. May I correct this impression by saying that I have found gas and air analgesia of the greatest possible value in all the stages of labour, and the method was devised with this end in view?—I am, etc.,

Liverpool, April 30th. R. J. MINNITT.

Cancer and Gastric Ulcer

SIR,—Mr. Hamilton Bailey misunderstands me. I do not recommend medical treatment to "relieve" gastric ulcer; medical treatment is futile unless it is sufficiently thorough to *cure* gastric ulcer. There can then be no danger of carcinoma as a sequel, because there is no evidence that a growth ever develops in the scar of a healed ulcer.—I am, etc.,

New Lodge Clinic, May 4th. ARTHUR F. HURST.

Salicylates in Rheumatic Fever

SIR,—The liberality of your columns is well emphasized in the *Journal of* April 27th. On page 890 Dr. Cotton tells us that "in the initial attack of rheumatic fever, and in the acute phases of a recurring infection, when the heart is likely to be involved in an inflammatory process, salicylates in heavy doses should be prescribed up to the point of saturation." On page 67 of the *Epitome* of Current Medical Literature Dr. C. Reitter is quoted from the *Med. Klinik*, December 28th, 1934, as follows: "He points out that the prophylactic treatment of rheumatic endocarditis has hitherto been a failure."

This striking contrast should be brought home to every reader when there is such a great tendency to prescribe drugs of the salicylic group and when there is no justification whatever for so doing. The tendency to give these drugs increases with the rise of temperature or the persistence of a raised temperature, although the severity of the endocarditis bears no relation to either the severity of the fever or the joint affections. If powerful drugs like these do no good, they must be and are prejudicial to

the welfare of the little patient ; for this reason it is time that a general warning were issued.

I have found that the results obtained by the use of lime salts and parathyroid are much better than those obtained by the use of salicylates, and if the former are combined with subcutaneous injections of distilled water (10 c.cm. on alternate days) the results are really most satisfactory. It was in the *British Medical Journal*, 1913, vol. i, page 706, that I first drew attention to the value of distilled water, and offered an explanation for its action based on a modification of the surface tension of the body cells. Since then I have used it frequently and have found it of great value.—I am, etc.,

Swansea, April 27th. G. ARBOUR STEPHENS.

A Common Final Examination

SIR,—My letter—published in your issue of March 30th last, in response to an inquiry by Professor J. A. Nixon of Bristol concerning a point in my previous letter (January 26th)—closed with the words: "Exactly why it was never acted upon I have not yet ascertained." During the last few weeks I have had access to the early Minutes of the General Medical Council, and I feel I ought to correct—or perhaps amplify—some of the facts stated in my two former letters, which were based solely upon rather scanty manuscript notes which had come into my possession.

Systematized medical education may be said to have begun in this country with the Medical Act of 1858, under which the General Medical Council was constituted, and it requires little imagination to visualize the vast mass of detail, the hundred-and-one intricate problems, and the tremendous difficulties—not to mention the unenviable task of finding its own feet—which faced the new Council. The desirability of taking advantage of the provision of Section 19 (Schedule A) of the Act was early felt—at least North of the Tweed—for in 1859 the Royal Colleges of Physicians and Surgeons of Edinburgh decided to have a common examination for the granting of both qualifications. Subsequently the Royal Faculty of Physicians and Surgeons of Glasgow joined in this scheme, and thus was evolved what is now known at the Triple Qualification of Scotland. For the moment, however, I am concerned with England as distinct from Scotland and Ireland, for it is interesting to note that there does not appear to have been any proposal, at any time, for the establishment of one Examining Board for the whole of the United Kingdom. All through, the question has always been of establishing one Examining Board in each of the three divisions of the Kingdom.

In 1859 the Royal College of Physicians of London approached the Royal College of Surgeons of England with a view to co-operation, but the overtures of the Physicians were after considerable discussion coldly received by the Surgeons. In 1865 the G.M.C. invited the views of the licensing bodies as to

> "whether it be desirable and practicable, for the relief of candidates for licences from superfluous examinations, to establish in England, Scotland, and Ireland severally, a conjunct Examining Board before whom candidates may be subjected to a single series of examinations for the double qualification of physician and surgeon."

At once the Royal College of Surgeons of England—making amends, it would seem, for cold-shouldering the sister College six years before—appointed a committee to consider "the provisions of such an alliance with the Royal College of Physicians." None of the English universities, however, were very optimistic about the suggestion ; in fact, the University of London, having taken three years to reply, said that they "could not hold out any expectation that they will be willing to accept the examinations of any other licensing body in substitution for their own."

It will be appreciated that during these early years, while the infant G.M.C. was struggling to feel its feet, its relationship with the Government of the day—through the Lord President of the Privy Council—was of the closest and most amicable nature, the Mother of Parliaments keeping a very close and affectionate eye upon what promised to be one of her most powerful children. In the first twenty years of the Council's existence no fewer than twelve Acts—affecting the original Act of 1858—were placed on the Statute Book, and many others were drafted, discussed, and dropped, either at the suggestion of the Government or of the profession. One of the latter, introduced by the Government in an effort to enforce the establishment of "consolidated Examining Bodies," included what appeared to be grave infringements of the privileges of the medical authorities, and was withdrawn by the Government on pressure from the medical profession in August, 1870. It was not until 1872 that a scheme, proposed by the two Royal Colleges in London, and approved by the four English Universities and the Society of Apothecaries, was successfully drafted. Even then, the University of London and the Society of Apothecaries could only approve subject to overcoming certain legal difficulties which prevented their taking part in the scheme. The Medical Act (University of London), 1873, and the Apothecaries Act Amendment Act, 1874, removed these legal difficulties, and in 1877 this second draft scheme was approved, with every hope of becoming operative during the following year. At the opening of the session of the G.M.C. in June, 1878, the President, Dr. H. W. Acland (subsequently Sir Henry Acland, K.C.B.), said:

> "It is certain that for medical education what is most needed is the application of the best minds to the steady development of a sound literary, scientific, and practical Examination scheme, which shall admit diversity of learning and teaching, without allowing unreasonable stringency or dangerous leniency in testing results. Who will best arrange this scheme? A Government Office, or the combined efforts of the profession? Is not this the question now really at issue? Must not the Council face the question and endeavour to agree on a united action?"

The consideration of the details of the 1877 scheme, by the licensing bodies concerned, received a setback from a new quarter, for an Amending Act of 1876 had opened the door of medicine to women, and the licensing bodies were once more torn asunder—this time on the sex question, which proved, as it usually does, insoluble. That was the end. Negotiations struggled on for a few years, but in 1884 the Royal Colleges in London, acting together, gave notice of their withdrawal from the scheme of 1877, owing to the fact that it had never been put into operation. In the same year the two Royal Colleges agreed to constitute the present Examining Board in England—popularly known as the Conjoint Board—on the foundations of the 1877 scheme. After the passing of the Medical Act of 1886 the Society of Apothecaries approached the Royal Colleges suggesting that in order to avoid competition, which is not in the interests of the public, the Society should join the Examining Board in England, to which the Royal Colleges replied that, as the Board's Examination was already a complete qualification in medicine, surgery, and midwifery, the proposal of the Society was "therefore unnecessary."

In the light of this history, and particularly of Sir Henry Acland's words of 1878—which are as true to-day as when they were spoken—is it really possible that the voluntary "combined efforts of the profession" could fail to achieve now the object for which their forebears fought in the days gone by?—I am, etc.,

April 24th. A LAYMAN.

Septic Finger Clinics?

SIR,—We recently have had the report of a committee on fractures and a good deal of resultant controversy. I venture to suggest that "properly organized" fracture clinics are merely a beginning. Why cannot we do the same for septic fingers as has been suggested for fractures? It has been shown quite definitely that "properly organized" fracture clinics result in an enormous reduction in the incidence of crippling, in the incapacity period, in the compensation, as well as in the cost of the individual case to the hospitals. Surely, then, "properly organized" septic finger clinics would result in a similar reduction. May I be permitted to give my opinion as to a few of the essentials for such a clinic?

The clinic should be held every day. Septic fingers are surgical emergencies and cannot wait for a day or two for treatment. If the clinic is held only once a week it may be doing very valuable work, but too often, when the cases arrive at it—incidentally, "drift" is a more appropriate word than "arrive"—incision has been too long delayed, or else inadequate, incorrect, or unnecessary incisions have been performed by general practitioners, casualty officers, house-surgeons, or even consultants. If a hospital is fortunate enough to possess a senior surgical registrar or resident surgical officer of sufficient experience, skill, and qualifications then he should be in charge of the clinic, failing which one of the consultants should volunteer to devote part of his time to the clinic. It is useless for more than one person to be in charge, because then we find that (*a*) one consultant may hesitate to re-incise or to alter treatment lest he be considered to be criticizing his colleague, or (*b*) we get different dressings on different days. One man must be in sole charge if we are to have that continuity of treatment which is so essential for good results. If we have a senior resident surgical officer in charge then he can call in the honorary surgeon on duty for that day whenever he is in doubt, and the house-surgeon for the day can act as assistant, thereby gaining valuable experience. If any patient requires admitting then he should be admitted to one of the wards of the surgeon for the day, or else a few beds must be reserved in the hospital for the sole use of the clinic.

Septic finger clinics would also serve the valuable purpose of instructing medical students in the diagnosis and treatment of a common condition which is, however, but little seen by the student, who has to rely too often on the far from lucid prose of Kanavel, and (if he is very fortunate) he may see the excellent films based on Kanavel's work. In addition, when general practitioners and the public learn that we have "properly organized" clinics then we will see far more subcuticular whitlows and far fewer infected tendon sheaths.—I am, etc.,

Birkenhead, April 27th. SIDNEY PAPPWORTH, M.B.

The National Institute of Industrial Psychology has arranged, under the Heath Clark Bequest, three public lectures on "The Temperamental Factor in Industry," to be given by Professor Major Greenwood, F.R.S., and Dr. May Smith at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., on Mondays, May 13th, 20th, and 27th, at 5.30 p.m. On May 13th Professor Greenwood will speak on the modern importance of the temperamental factor and its ancient history, and on May 20th the same speaker will discuss temperaments, physical and psychological, in modern science. Dr. May Smith's lecture, on May 27th, will deal with industrial applications. The chairmen at the lectures will be Professor Winifred Cullis, Dr. Arthur MacNalty, Chief Medical Officer, Ministry of Health and Board of Education, and the Marquess of Linlithgow, chairman of the Medical Research Council, respectively. Admission free, without ticket.

Obituary

S. NOY SCOTT, M.R.C.S., D.P.H.

Past President, South-Western Branch

The death, at the age of 73, of Dr. Sack Noy Scott is an irreparable loss to the British Medical Association, to the medical profession, and to the West of England. Inspired by lofty ideals and possessed of vigour, wisdom, and ability, no medical man in this generation has worked harder for the community, or done more to raise the standards of the profession and increase the esteem in which it is held.

Dr. Scott was Cornish by birth, and received his medical training at Charing Cross Hospital, where he had a brilliant career as a student, and secured, among other distinctions, the Governor's gold medal. He qualified M.R.C.S., L.R.C.P. in 1889, and obtained the D.P.H. in 1892. After a few years spent in practice at Lewisham he returned to the West Country rather more than forty years ago, and practised at Plymstock until his retirement in 1928. In addition to the activities of a busy general practice Dr. Scott acted as medical officer of health to Plympton district, and earned the highest respect of his public health colleagues, who elected him president of the West of England Branch of the Society of Medical Officers of Health in 1926. In 1906 he became justice of the peace for Plympton, and after his retirement sat on the bench of magistrates at Paignton until his death. In 1894 he became chairman of one of the first parish councils established in this country; he was a keen political worker in the Conservative cause, and was for many years member of the Plymstock Parochial Church Council, which body presented him, on his retirement, with an illuminated address, recording his "Service, devotion, love, and example in well-doing for the benefit of others," during his thirty-four years' service as "friend, adviser, serving sidesman, warden, and treasurer."

Throughout his career Dr. Scott was a keen supporter of the British Medical Association, and a vigorous participant in all our activities. First elected a member in 1894, he was secretary of the Section of State Medicine at the Annual Meeting held at Exeter in 1907, president of the South-Western Branch in 1911, representative at the Annual Representative Meeting 1913–21, also in 1923 and 1925. He was honorary secretary of the Plymouth Division from 1922 to 1927, vice-president of the Section of Public Medicine at the Bath Meeting in 1925, and sat on the Council for the year 1917–18. During the last few years he acted frequently as regional medical officer.

His cheery and kindly personality endeared him alike to patients and colleagues, and Dr. Scott leaves behind him a magnificent example of altruism and service, hard indeed for those who are left to follow.

EDOUARD JEANSELME, M.D.

Professor Edouard Antoine Jeanselme, of whom an obituary notice appeared in the *Paris Médical* of April 13th, was well known to dermatologists, students of tropical medicine, and medical historians in this country. He was born in Paris on June 14th, 1858, where he qualified in 1887 and was made physician to the hospitals in 1896, serving in turn as a member of the staff of the Hérold, Tenon, Broca, and St. Louis Hospitals. The active interest which he took in leprosy dated from 1893 and persisted throughout his professional life, his monumental work on the disease being published in 1934. In 1897 he was the French delegate at the first international congress on leprosy held in Berlin, and the following year was appointed by the French Ministers of Education and the Colonies to study the means of reducing the

incidence of leprosy in the French colonies. For this purpose he visited Indo-China, Yunnan, Burma, Siam, Malacca, and the Dutch Indies, where he collected a large amount of valuable information, which he subsequently published about leprosy and other tropical diseases, especially beri-beri, framboesia, tinea imbricata, and small-pox and syphilis in the native. From 1904 to 1909 he made a series of clinical and histological studies on juxta-articular nodosities, which he proved to be an independent disease, unconnected with framboesia or syphilis. In 1919 he succeeded Professor Gaucher in the chair of dermatology and syphilography at the Hôpital St. Louis, where he sought to substitute out-patient treatment for confinement in hospital. He also took an active part in the campaign against venereal disease, and, in 1923, founded La Ligue Française contre le Péril Vénérien. In 1931 appeared under his editorship the first volumes of a *Traité de Syphilis*, to which, among other articles, he contributed an important historical introduction. He was also an active participant in the international congresses of the history of medicine as well as a frequent contributor to the proceedings of the Société Française de l'Histoire de la Médecine. Professor Jeanselme was elected a member of the Académie de Médecine in 1919, and at the time of his death had been nominated by the Council of the Royal Society of Medicine as an Honorary Fellow.

We regret to record the death, at the age of 71, of Dr. WILLIAM BAIGENT, who had been for thirty years medical officer of health to the Northallerton Urban District Council. He studied medicine at the University of Durham College of Medicine in Newcastle-on-Tyne, and graduated M.B. in 1885, proceeding M.D. five years later with a gold medal for his thesis. Before settling down in general practice at Northallerton he had held the posts of senior house-physician and resident anaesthetist at the Royal Victoria Infirmary, Newcastle, and resident medical officer to the Dunston Lodge Asylum, and in 1893 he contributed to the *Northumberland and Durham Medical Journal* a statistical analysis of 3,000 cases of anaesthesia with chloroform. He was for many years a member of the British Medical Association, and from 1919 to 1925 served on the Rural Practitioners' Subcommittee of the Insurance Acts Committee. Dr. Baigent was very well known as an authority on fly fishing and fly-dressing. He had been vice-chairman of the Tees Fishery Board for ten years, and succeeded Lord Gainford as chairman last year. During the war he organized and conducted the Northallerton Red Cross Military Hospital and was commandant of the local Voluntary Aid Detachment, for which services he received the M.B.E.

Dr. ADAM FREDERICK JOHN MICKLE, whose death occurred on February 20th, in his eighty-eighth year, was the third son of the late David Mickle, M.D., who practised in Yorkshire. After receiving private tuition he proceeded to Edinburgh, where, in 1875, he obtained the L.R.C.P. & S. diplomas. He then entered Aberdeen University, where, in 1878, he obtained the M.B. degree, and two years later proceeded M.D. In 1882 he became a Fellow of the Royal College of Surgeons of Edinburgh. Dr. Mickle took up private practice at Alva in Scotland, where he remained some three years, relinquishing it to return home to help his father. In consequence of the strenuous work his health gave way temporarily, and he went for a sea voyage. Arriving in New Zealand in 1880, he was at once appointed house-surgeon to the Christchurch Hospital, a position he held for about nine months. In 1881 he married Miss A. M. Esmond, the then matron of the Christchurch Hospital, and took up private practice in the city of Christchurch, where he continued for about forty years. Owing to a breakdown in health he retired to New Brighton (a suburb of Christchurch) in 1921, and resided there until his death. In 1925 he was elected an honorary member of the New Zealand Branch of the British Medical Association. A prominent citizen writes: Born of good British stock and of Christian parentage, Dr. Mickle inherited great principles, which laid the foundation of excellent citizenship. He was a lover of the British race and Empire, and admired everything in her Government and history that made for the common good. "Loyalty and duty" were his watchwords, and were brought to bear upon all he did and said. He was a great student of leading political affairs, and, though Conservative in politics, yet he was a man of wide outlook, a clear and logical thinker, and a sound adviser. Frequently through the Press with his versatile pen he has placed the people of this province under a great debt for the exquisite letters descriptive of Nature's charms. Nor was he one whit behind in business and political acumen, when, with his uncompromising pen, he entered the arena of controversy on some political or business proposition. Professionally he was an eminent practitioner, but he would have been equally great as a statesman. Socially he was the friend of all and the enemy of none. To know him fully and intimately was to love and admire him as one of God's gentlemen. During the Great War and afterwards both he and his devoted wife did much to further the cause of Empire. His interests in all that made for social betterment remained unabated to the end. He never coveted popularity—private or public—but by quiet and helpful deeds endeared himself to all with whom he came in contact.

Dr. JOHN GAY, of Upper Richmond Road, who died on April 20th at the age of 75, was a well-known and greatly respected figure in Putney, and had served as medical officer to the Royal Hospital and Home for Incurables for thirty-two years. After studying medicine at St. Bartholomew's Hospital and in Paris and Dublin, he took the M.R.C.S. in 1884, the L.R.C.P. in 1887, and the D.P.H. of the English Conjoint Board in 1892. In 1909 he obtained the M.D. degree of Durham University. Dr. Gay's early appointments included those of house-surgeon at St. Bartholomew's, and resident clinical assistant at the City of London Hospital for Diseases of the Chest. In more recent times he was chairman of the Wandsworth Division of the British Medical Association, president of the South-West London Medical Society, and chairman of the L.C.C. School Treatment Centre. He was a well-known freemason, and had been associated for many years with the Fulham and Putney Division of the British Red Cross Society. He was also a member of the Wandsworth Borough Council for some years, and had long been a liveryman of the Company of Leathersellers.

The Services

The King has conferred the Efficiency Decoration of the Territorial Army upon Colonel Alfred Hope Gosse; Honorary Colonel Frank Marsh, C.B.E. (R.A.M.C. Units, 48th South Midland Division; Brevet Colonel, retired, T.F.); and Lieut.-Colonel and Brevet Colonel Herbert Leslie Garson, O.B.E., *M.C.*

DEATHS IN THE SERVICES

Lieut.-Colonel William Hooper Pinches, R.A.M.C. (ret.), died in London on April 9th, aged 73. He was born in London on August 10th, 1861, was educated at Bart's, and took the M.R.C.S., L.R.C.P.Lond. in 1884. Entering the Army as surgeon on August 1st, 1885, he became lieutenant-colonel after twenty years' service, and retired on August 25th, 1906. He had a long list of war service: the Hazara expedition of 1891, on the North-West Frontier of India (Frontier medal and clasp); the Dongola campaign of 1896 (Egyptian medal with clasp, and 4th class of the Medjidieh); the Nile campaign of 1898, including the battle of Khartum, where he took part in the famous charge of the 21st Lancers under Colonel Martin at Omdurman (mentioned in dispatches in the *London Gazette* of September 30th, 1898, medal, and clasp to Egyptian medal); and South Africa, 1899 to 1902, operations in Transvaal, Orange River Colony, and Cape Colony (Queen's medal with three clasps, and King's medal with two clasps). He also rejoined for service in the war of 1914-18.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on May 2nd the degree of Doctor of Medicine (D.M.) was conferred on R. B. Bourdillon (*in absentia*) and J. de la M. Savage.

UNIVERSITY OF CAMBRIDGE

The Professor of Anatomy gives notice that applications for the Marmaduke Sheild Scholarship in Human Anatomy are to be sent to the Registrary by May 20th. The award will be made towards the end of June. Those eligible for the scholarship are undergraduates of not more than three years' standing from matriculation, and Bachelors of Arts of not more than four years' standing from matriculation, as have passed Part II of the Second M.B. Examination and have also obtained honours in Part I of the Natural Sciences Tripos with anatomy as one of their subjects. Women also are eligible. The awarders will take into consideration not only the candidates' performance in examinations in anatomy, but also reports by the staff of the Department of Anatomy on their general ability and performance as students of anatomy.

At a congregation held on May 4th the following medical degrees were conferred:

M.D.—M. H. Salaman, H. E. Nourse.

M.CHIR.—F. W. Holdsworth.

M.B., B.CHIR.—A. C. E. Cole, G. E. H. Tisdall, A. T. Blair, H. J. V. Morton, A. Miller, G. L. Ward, L. W. B. Dobbin.

M.B.—E. A. M. Halsted (by proxy), W. H. H. Jebb, H. M. Chappel, P. W. Hutton, J. W. Macmillan, T. M. Bell, W. D. Dick, J. W. Maycock, A. S. Herington.

B.CHIR.—R. J. Buxton.

UNIVERSITY OF LONDON

A course of three lectures on "The Head Problem in Chordates" will be given by Dr. Daniel De Lange, director of the Hubrecht-Laboratorium, Embryologisch Instituut, Utrecht, Holland, at King's College, Strand, W.C., on Tuesday, Thursday, and Friday, May 28th, 30th, and 31st, at 5.30 p.m. At the first lecture the chair will be taken by Professor J. P. Hill, F.R.S. Admission free, without ticket.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The courses of study for 1935–6 will open on Monday, September 30th, for the Diploma in Public Health, the Diploma in Bacteriology, and the Diploma in Psychology (Industrial) of the University of London, and for the Diploma in Tropical Medicine and Hygiene. Two Andrew Balfour Memorial Studentships are available in the year in the form of free tuition in Section B of the course in tropical medicine and hygiene. Conditions and dates of the examinations may be had on application to the secretary, London School of Hygiene and Tropical Medicine, Keppel Street (Gower Street), W.C.1.

QUEEN'S UNIVERSITY OF BELFAST

The Senate has appointed to the Dunville Chair of Physiology Dr. Henry Barcroft, lecturer in physiology, University College, London. The Senate also appointed to the J. C. White Professorship of Biochemistry Dr. D. C. Harrison, lecturer in biochemistry, University of Sheffield.

Colonel S. H. Browne, late of the Indian Medical Service, has bequeathed to the University £10,000 to found medical research scholarships.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Licences

Licences to practise were granted to the following candidates on May 2nd:

M. P. Adel, J. K. Adranvala, D. G. Allen, Minnie Atkin, E. B. D. Bangay, A. L. W. Bell, M. H. Bob, H. V. Brown, J. A. G. Carmichael, H. B. C. Carter-Locke, L. J. Clapham, J. V. Clark, P. E. G. Clements, M. Cohen, S. Cohen, L. Cooperman, F. F. Croft, A. P. Dale-Bussell, M. C. Damkengrit, Debora David, C. E. M. De Gruchy, G. C. Denny, E. P. H. Drake, F. P. Ellis, M. A. Falconer, J. S. Feynman, J. W. Fisher, W. P. Fitch, R. I. Force-Jones, L. D. B. Frost, R. T. Gabb, J. G. Gladston, C. J. Gordon, G. B. Grayling, K. L. Grogono, J. H. G. Hair, J. A. J. Hammond, W. F. Harvey, T. H. Hills, E. D. Hoare, J. J. V. Hopkins, H. M. Hugh, Ruth Hull, R. F. Jarrett, J. D. Jenkins, D. V. John, I. Klinger, F. H. Lee, D. Levine, I. W. MacKichan, P. E. C. Manson-Bahr, J. H. Mayer, M. S. M. Mehta, H. S. Mellows, W. J. Mitchell, J. F. Morris, S. J. Navin, R. J. Niven, W. O. G. Paget, J. H. Patterson, S. Phillips, F. O. Potter, A. E. K. Price, G. R. Rawlings, W. M. Rich, J. S. Richardson, W. B. Ridsdel, E. P. Rigby, Jean Ross, Venkiteswariyer Sankarambal, J. Schorstein, D. S. Scott, M. J. Shah, F. A. Simmonds, F. R. Smith, J. E. Spalding, D. P. Stevenson, K. Tatz, F. Taylor, W. Warren, C. E. Watson, A. B. Wayte, Helen E. Wight, E. D. H. Williams.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly meeting of the College, held on May 3rd, R. T. Jackson, R. L. G. Proctor, and M. S. Ullah were admitted to the Fellowship.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the quarterly meeting of the council, held on April 27th, with the president, Dr. J. S. Fairbairn, in the chair, the following were promoted to the Fellowship of the College, and were formally admitted by the president: W. R. Addis, D. Baird, Alice Bloomfield, J. Chisholm, A. B. Danby, E. K. MacLellan (*in absentia*), E. L. Moss.

The following were elected to the Fellowship of the College: L. C. Conn, Amy M. Fleming, A. A. Gemmell, V. J. F. Lack, W. C. Spackman, L. Williams.

The following were admitted to Membership: J. G. Bonnin, D. McK. Hart, K. A. K. Hudson, B. D. Knoblauch (*in absentia*), R. MacK. Honey (*in absentia*), R. W. Knowlton, J. L. Mewton, H. J. McCurrich, R. H. Nattrass, O. Robertson (*in absentia*), Helen E. Rodway, Margaret Rorke, F. E. Stabler, J. A. Stallworthy, D. M. Stern, H. Stirling, Muriel Stowe (*in absentia*).

Major R. McRobert was elected to the Membership.

The annual general meeting of the College was held on April 27th, with the president, Dr. J. S. Fairbairn, in the chair.

The following were elected to the council in place of those retiring by statutory rotation:—*Representatives of the Fellows:* Mr. A. W. Bourne, Professor J. Hendry, Sir Ewen Maclean, and Professor M. H. Phillips. *Representatives of the Members:* Dr. W. C. Armstrong and Dr. C. P. Brentnall.

The report of the Joint Council of Midwifery was considered and generally approved, but some aspects of the scheme were reserved for further consideration.

HENRY SIMSON MEMORIAL LIBRARY

On the previous evening a reception was held at the College on the occasion of the presentation by Lady Simson of the collection of books purchased as a memorial to the late Sir Henry Simson. In presenting the books to the College Lady Simson said that during the two and a half years that have elapsed since the money subscribed for the memorial was presented to the College, she had been impatient to have it expended, but she now realized how wise had been the decision of council to await a suitable object, otherwise an opportunity which so completely fulfilled her wishes would have been lost. It had arisen through the generosity of one of the Fellows, Professor Roy Dobbin of Cairo, to whom she expressed her gratitude.

In accepting the books on behalf of the College the president spoke of Sir Henry Simson's valued services to and interest in the College, especially at the time leading up to the opening of its house. This gift thus formed a peculiarly appropriate memorial to him. As Lady Simson said, a fortunate chance had enabled the College to obtain a wonderful collection of historical works that for all time would be its treasured possession. Professor Dobbin had accepted much less than their market value to ensure these books being kept together, and where he would like them to be.

Mr. Eardley Holland thanked Lady Simson for her efforts on behalf of the College, and said he felt sure nothing would have given the late Sir Henry more pleasure than that the College in which he was so interested should have this nucleus of a library which would be a permanent feature of the College.

Dr. Arnold Chaplin, the Harveian Librarian of the Royal College of Physicians, drew attention to the rarity and important place of certain books in the collection, which the College was so fortunate to have secured, and he hoped that the action of Lady Simson would be a stimulus to others to add to the library.

Professor Fletcher Shaw thanked Dr. Chaplin for his help and advice regarding the purchase and exhibition of these books.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Both Houses of Parliament presented addresses to the King in Westminster Hall on May 9th. The House of Commons was in committee during the week on the schedules of the Government of India Bill. Consideration of the Housing Bill ended in Standing Committee, and the Bill was reported to the House with slight amendments. One provides that an area with one-third of the working-class houses overcrowded or unfit can be declared a re-development area by any urban authority.

Osteopaths Bill

The meeting of the Select Committee of the House of Lords on the Registration and Regulation of Osteopaths Bill, arranged for Thursday, May 11th, has been postponed *sine die*, on account of the illness of the chairman, Lord Amulree. The committee will meet again at a later date to consider its report.

Maternal Mortality in 1934

In a reply on May 2nd to Mr. George Griffiths, Sir HILTON YOUNG said deaths registered in England and Wales during 1934 included 2,747 classified to pregnancy and child-bearing, and 748 returned as associated with those conditions. The figures were provisional. A suggestion by Mr. Pike that many of these deaths were due to lack of maternity services in the industrial areas was, Sir Hilton said, entirely without justification. Sir FRANCIS FREMANTLE drew the Minister's attention to an experiment in Rochdale, where existing organizations, by intensive propaganda, in three years reduced maternal mortality to about one-third of what it was previously. Mr. GEORGE GRIFFITHS remarked that the figures given by Sir Hilton Young showed fifty-one more deaths than in 1933. Sir Hilton Young said the causes of maternal mortality were many, and most careful investigation was required into particular cases.

Increased Cost of Milk to Hospitals

On May 2nd Mr. LEONARD asked whether the attention of the Minister of Agriculture had been called to the fact that, owing to the regulations of the Milk Marketing Boards, some hospitals had had the price of milk raised against them from 33 per cent. to 63 per cent., and to what extent the matter was being considered, to ensure no limitation of milk consumption in such institutions and no substitution of inferior grades. On the same day Sir JOHN HASLAM asked why hospitals could not purchase the milk they required for their own use at about the same wholesale price as they did before the existence of the Milk Marketing Board. Replying to both questions, Dr. ELLIOT said that for prices payable by hospitals for milk supplied under the Scottish Milk Marketing Scheme, 1933, which were considered by the Committee of Investigation for Scotland, he referred Mr. Leonard to a reply given by Sir Godfrey Collins on April 8th to Mr. J. G. Burnett. In England and Wales the Milk Marketing Board prescribed a form of contract under which hospitals could obtain supplies at wholesale price, with small additional premiums for level deliveries or other special services. Hospitals not contracting with producers might obtain supplies from wholesalers under the resale clauses of the ordinary contract at the wholesale price plus premiums varying from ½d. per gallon for large quantities to 1½d. per gallon for small quantities. From particulars furnished by the British Hospitals Association it appeared that in approximately two-thirds of the voluntary hospitals in England and Wales the price paid for milk during 1934 was, on the average, about 15 per cent. more than in the year preceding the scheme, but that in individual cases the increase was 33 per cent., and in one instance 63 per cent. Dr. Elliot added that the Association had discussed the matter with the Milk Marketing Board. After careful consideration the latter had not seen its way to authorize the sale of milk to hospitals at less than the rates laid down, but suggested that if the association could obtain the concurrence of the Central Milk Distributive Committee (as representing the distributive trade) to supply at net wholesale prices the Board would give sympathetic consideration to a variation of the terms of sale accordingly.

Sir John Haslam further asked Dr. Elliot, in view of the indignation among hospital authorities at the high prices they had to pay for their milk supplies compared with the low prices paid by chocolate and cheese makers, to take steps to obviate this differentiation. Dr. Elliot replied that the effect of replacing purchases of milk at liquid rates by purchases at the manufacturing prices was to increase the loss already occasioned to milk producers. He would consider any proposals which Sir John might suggest to meet this difficulty. Sir John Haslam also asked if it were possible to arrange that where a public authority was the owner of a farm it could purchase its milk requirements direct from the tenant without the intervention of the Milk Marketing Board. Dr. Elliot said that the Milk Marketing Scheme gave power to the Milk Marketing Board to exempt from the operation of the marketing provisions of the scheme sales of such classes or descriptions as might be determined by the Board. The question raised by Sir John was a matter for the Board.

Ribbon Development Bill

In the House of Lords, on May 7th, the Marquess of Londonderry introduced the Restriction in Ribbon Development Bill. This is to provide for the imposition of restrictions upon ribbon development along frontages to roads ; to enable highway authorities to acquire land for the construction and improvement of roads ; to preserve the amenities or control development in the neighbourhood of roads ; to extend the powers of local authorities as to the provision of accommodation for the parking of vehicles and as to the prevention of interference with traffic ; and for purposes connected with the matters aforesaid.

The Bill was read a first time.

Medical Attention for Unemployed

Sir HILTON YOUNG said in the House of Commons recently that he hoped to make a statement within the next three weeks on the subject of legislation to deal with persons whose rights under the national health insurance system have expired

Incidence of Syphilis

Colonel Sir ARNOLD WILSON asked whether the attention of the Minister of Health had been drawn to the fact that the death rate from syphilis for 1933 was higher than for 1924, and the total number of reported new cases of venereal disease higher in 1933 than in 1925 or 1932 ; and whether he would consider the need for legislation to require compulsory notification and segregation of cases of these infectious and disabling diseases on lines similar to those in force under the Infectious Disease (Notification) Extension Act, 1899. Sir HILTON YOUNG answered that the crude death rate from syphilis per million persons living was the same in 1933 as in 1924, but the standardized rates showed a decline. The numbers of new cases attending the treatment centres provided for venereal diseases showed an increase over the years mentioned for all forms of venereal disease, but a decline for syphilis. These figures did not necessarily reflect the actual incidence of the disease. He saw no reason for disagreeing with the Committee of Inquiry of 1923, which came to the conclusion that compulsory measures on the lines suggested were not desirable. Sir ARNOLD WILSON, in a supplementary question, asserted that Great Britain was the only large country in Europe where these rates had not shown a substantial decline. Sir FRANCIS FREMANTLE retorted that Great Britain was the country where vital statistics were most real and extensive.

On May 7th Mr. SHAKESPEARE told Sir Arnold Wilson that no local authority made use of the Infectious Disease (Notification) Extension Act, 1899, to extend its powers to cases of venereal disease.

Cost of Road Accidents to Hospitals.—Asked by Mr. Leonard the total cost incurred by hospitals in England and Wales in treating road casualties, Mr. HORE-BELISHA replied on May 1st that, according to the *Hospitals Year Book*, 1935, 25,000 victims of road accidents were treated last year in the voluntary hospitals of Great Britain and Ireland at a cost of £235,000, of which £110,000 was recovered, including £80,000 under the Road Traffic Acts and the common law. Mr. Hore-Belisha added that payments to hospitals in respect of such treatment were not from funds under his control, though they might be made in pursuance of the Road Traffic Act.

Anti-gas Respirators.—Captain CROOKSHANK stated on May 2nd that the only anti-gas material which it was at present intended to purchase in the current financial year was a first supply of anti-gas respirators, mainly for the training of the personnel of air-raid precaution services. There was no intention of incurring any expenditure in connexion with an air-raid exercise for the civil population.

Temperature in Deep Mines.—Mr. E. BROWN told Mr. Tinker, on May 7th, that the temperature in hot and deep mines continued to be the subject of general and practical study by a research committee, and of ameliorative action in particular cases. He had not received any recommendation from the Hot and Deep Mines Committee or from the Safety in Mines Research Board in favour of fixing a maximum permitted limit of temperature.

Notes in Brief

Mr. Stanley states that the Unemployment Statutory Committee has not completed hearing evidence regarding the possible insurance of black-coated workers against unemployment.

The Treasury has now allocated £528,000 in grants in aid of water supply schemes of a total capital cost of £3,320,000. Since the Act providing these grants was passed in March, 1934, loans amounting to £4,370,000 have been sanctioned for water supply schemes, including £1,400,000 for rural schemes.

At December 31st, 1934, the national health insurance funds totalled £129,500,000.

Medical News

Among the recipients of the King's Jubilee Medal—a limited issue to certain persons who have rendered special service to the Crown during the past twenty-five years—are the following members of the Metropolitan Police Medical Service: Dr. Isaac Jones, chief medical officer; Mr. Max Page, consulting surgeon; Dr. H. Russell, assistant physician; and Drs. R. V. Brews, A. R. Moore, Percy Spurgin, and G. R. Stilwell, divisional surgeons.

The Lord Chief Justice of England will deliver the second Clarke Hall Lecture in the Hall of Gray's Inn on Friday, May 24th, at 4.30 p.m. Lord Hewart's subject is "The Treatment of the Young Offender."

Professor C. Seligman will deliver the annual oration on "Some Aspects of Race Psychology" before the London Jewish Hospital Medical Society at 44, Lancaster Gate, W. (by courtesy of Mrs. F. S. Franklin, on Sunday, May 12th, at 8.30 p.m., with the president, Professor Charles Singer, in the chair. Admission by ticket only, to be obtained on request.

A general meeting of the Tuberculosis Association will be held at 26, Portland Place, W., on Friday, May 17th, at 5.15 p.m., when papers on "Therapeutic Paralysis of the Diaphragm" will be read by Mr. H. P. Nelson and Dr. Peter Edwards. At 8.15 p.m. papers will be read by Dr. Peter Kerley and Dr. J. V. Sparks on "Radiographic Technique and the Interpretation of Radiographs."

The annual general meeting of the British Institute of Radiology will be held at 32, Welbeck Street, W., on Thursday, May 16th, at 8 p.m., when Dr. G. Shearer will deliver the presidential address on "The *X*-Ray Microscope." On May 17th, at 11 a.m., medical members of the society are invited to visit the *x*-ray department of the Middlesex Hospital, Mortimer Street, W.

Dr. Wallace Ruddell Aykroyd has been appointed by the Governing Body of the Indian Research Fund Association to the post of director of nutritional research under that association.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Thursday, May 16th, at 2.30 p.m., when a discussion on "Mental Health Services" will be opened by Dr. A. A. W. Petrie. The ninety-fourth annual meeting of the Association will be held at 11, Chandos Street, W., and at the Guildhall of the Middlesex County Council, Westminster, S.W., on Wednesday, Thursday, and Friday, July 3rd, 4th, and 5th. The annual dinner of the Association will be held at Claridges Hotel, Brook Street, W., on July 3rd, at 8 p.m.

A meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, W.C., on Wednesday, May 15th, at 5.30 p.m., when papers will be read by Dr. R. S. Clay and Mr. T. H. Court on "The Early Achromatic Objective," and by Dr. G. M. Findlay on "Variation in Viruses."

The Illuminating Engineering Society will hold its annual general meeting in the Hall of the Institution of Mechanical Engineers (Storey's Gate, St. James's Park, S.W.) on Tuesday, May 14th, at 7 p.m., and an address, describing some investigations bearing on the production of light, will be delivered by Professor M. Pirani of Berlin.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that an intensive course in thoracic surgery will be given at Brompton Hospital from May 13th to 18th. Other courses include proctology at Gordon Hospital, from May 20th to 25th; gynaecology at Chelsea Hospital, from May 27th to June 8th; chest diseases at Victoria Park Hospital, from May 27th to June 1st; venereal disease at London Lock Hospital, from May 27th to June 22nd; clinical and pathological course at National Temperance Hospital on Tuesdays and Thursdays at 8 p.m., from June 11th to 28th. Special classes for the M.R.C.P. will be given in chest and heart diseases at Victoria Park Hospital on Wednesdays and Fridays at 6 p.m., from June 5th to 28th, and in chest diseases at Brompton Hospital two afternoons a week during June. Week-end courses include obstetrics at City of London Hospital, May 25th and 26th, and fevers at Park Hospital, June 15th and 16th.

The Swiss Society for Internal Medicine will hold its annual congress at Lausanne on May 25th and 26th, when the chief subject for discussion will be the pathology and treatment of oedema.

The fourth French Congress of Gynaecology will be held at Salies-de-Béarn from June 8th to 10th, with Dr. Doléris as president of honour and Professor Guyot as president. Further information can be obtained from the general secretary, Dr. Maurice Fabre, 6 Rue du Conservatoire, Paris 9e.

A congress of French-speaking radiologists will be held at Brussels from July 30th to August 3rd, under the presidency of Dr. Z. Gobeaux. Further information can be obtained from the secretary, Dr. Daubresse-Morelle, Rue de la Loi 154, Brussels.

Dr. Norman Jennings, who was called to the Bar in 1931, has been appointed coroner for the City of Hull, in succession to the late Dr. Divine. The coronership is a part-time appointment which does not preclude the continuance of private medical practice. Dr. H. E. Watts Waters has been appointed deputy coroner.

The issue of *Nature* for May 4th is a Royal Jubilee number, including articles on: the discovery and significance of vitamins, by Sir F. Gowland Hopkins; diet and disease, by Professor Stuart J. Cowell; viruses as a cause of disease, by Dr. Joseph A. Arkwright; heat production of muscle and nerves, by Professor A. V. Hill; therapeutic and other applications of *x* rays and gamma rays, by Dr. G. W. C. Kaye; and genetics since 1910, by Professor J. B. S. Haldane.

Dr. William Gibson has been elected a member of the Senate of Northern Ireland in the place of the late Sir George Clark.

The University College Hospital Medical Society is organizing an inter-hospitals debate on the medical curriculum, to be held at B.M.A. House, Tavistock Square, W.C., on Tuesday, May 14th, at 8.15 p.m., the motion being, "The Inadequacy of Medical Education Lies in the Curriculum." Participation in the debate will be limited to unqualified students.

Dr. Lewis J. Hobson has recently completed fifty years' service on the honorary medical staff of the Royal Bath Hospital and Rawson Convalescent Home, Harrogate.

Professor L. J. Witts (St. Bartholomew's Hospital), Dr. G. W. B. James (St. Mary's Hospital), and Mr. A. E. Webb-Johnson (Middlesex Hospital) have been appointed members of the Medical Advisory Board of the Institute of Medical Psychology to fill the vacancies caused by the death of Sir Maurice Craig, Dr. E. D. Macnamara, and Dr. Theodore Thompson.

St. Bartholomew's Hospital has received a gift from Mr. Joseph H. Jacobs for the installation of a new 200 kilovolt *x*-ray therapy apparatus in the radiological department, in honour of the King's silver jubilee.

Members of the Gynaecological Visiting Society, a body formed in 1911, left London on Saturday, May 4th, for a ten-days tour to Vienna and Budapest. Meetings have been arranged with prominent specialists in this branch of medicine in Vienna and Budapest and with the gynaecological associations of Austria and Hungary.

The May number of the *Practitioner*, which opens with a short paper by Sir Humphry Rolleston on the advance of medicine during the last quarter of a century, is mainly devoted to a symposium on allergic diseases.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Softened Drinking Water

"AQUA" asks whether drinking softened water is good for rheumatism, and whether it might harm growing children.

*** Recent papers on water softening in relation to public health all seem to emphasize the economic side—saving in soap, prevention of chalk deposition, and the reduced corrosive action thereby effected, etc.—and they suggest that hardness in water has little sanitary interest, except, perhaps, that a hindrance to the use of soap is of fundamental importance in hygiene and sanitation. The question "Is it good for rheumatism to drink softened water?" assumes a relation between hard water and rheumatism. There are several papers on the influence of hard water on health—for example, J. T. Myers, *Journ. Infect. Dis.*, 1925, xxxvi, p. 566; xxxvii, p. 13; E. S. Chase, *Journ. Amer. Water Works Assoc.*, 1924, xi, p. 873; Percy G. Lewis, *British Medical Journal*, July 22nd, 1911, p. 158. These suggest that there is no reason to believe that hard water has any more relation to disease than soft water. J. T. Myers, in particular, in reviewing the literature of the subject, dismisses the evidence against natural hard water as of little real weight. We have not been able to find any evidence bearing upon the question whether softened water is harmful to growing children.

Snoring

"H. N." writes: "Can any reader tell me how to cure snoring? The patient is a man of 38, in good health, and with no appreciable defect of nose or throat. The moment he goes to sleep—in any position—he snores persistently and deafeningly.

Canities

"A. G." would be grateful for suggestions for treatment of streaks of grey hair occurring in a dark-haired girl of 23, which have been gradually becoming worse since the age of 16. She has been advised to undergo electrical treatment, and has consulted "A. G." as to its efficacy.

LETTERS, NOTES, ETC.

Rickets on a Vitamin-rich Diet

Dr. OXENIUS tells in the *Deutsche medizinische Wochenschrift* of December 21st, 1934, how he was consulted by a colleague whose 1-year-old son showed signs, clinical and *x*-ray, of well-marked rickets. After having been breast-fed for a little over three months the child had been put on almond "milk," fruit, vegetables, etc. For breakfast he was given almond "milk," a banana, and fruit juice. At the next meal he was given porridge, almond "milk," butter, green vegetables, and fruit juice. The third meal consisted of almond "milk"; at the fourth (evening meal) he was given rusks and fruit juice. On this diet he not only developed rickets but failed to gain weight at the normal rate. The author prescribed a proprietary cod-liver oil product and artificial sunlight. The child, first seen in May, was again seen in September, after several weeks' residence by the sea. Much improvement had been effected in the interval, the only bony deformity that still persisted being a slight curvature of the right tibia. The lesson of this case is that new-fangled and comparatively costly substitutes for natural milk, such as almond "milk," should be regarded with suspicion and even disfavour, no matter how influential and persuasive their promoters may be. It has yet to be proved that vegetable "milks" can replace natural milk in childhood.

Serum in Asthma

Dr. E. G. ANNIS writes from Worthing: I read with great interest the note of Dr. Auld (April 27th, p. 899) as to the use of normal serum in these cases and the use of donors of the blood transfusion service for this purpose. Might I be allowed to state that I have been using a serum obtained from ox blood after it has been treated by Bloor's method for reduction of protein and cholesterol, and have obtained quite good results in suitable cases.

Medical Golf

The spring meeting of the Sussex Medical and Dental Golfing Society will be held on Sunday, May 19th, on the links of the Willingdon Golf Club, Eastbourne. Further particulars from the honorary secretaries, 40, Wilbury Road, Hove, 3.

The City Division (B.M.A.) Golfing Society will meet at Chigwell Golf Course on Sunday, May 26th. Members of the Division interested in golf should send their names to the golfing secretary, Dr. Herbert Williams, 73, Lordship Road, N.16.

Corrigenda

Dr. J. ERIC STACEY wishes to correct two slips in his paper on "Analgesics in Labour," published in the *Journal* of April 20th (p. 820), second column, line 13: for "Reynolds" read "Rawlings," and half-way down the same column read "Christie Brown" for "Browne."

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 46, 47, 48, 49, 52, and 53 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears on page 1012.

British Medical Association

ELECTION OF 24 MEMBERS OF COUNCIL BY GROUPED BRANCHES IN THE BRITISH ISLES

The following is a list of the nominations received for 1935–6.

Group	Branches in Group	Candidates Nominated	No. of Seats
A	North of England	Dr. J. HUDSON (Newcastle on Tyne)	1
B	Yorkshire	*No nomination*	1
C	Isle of Man. Lancashire and Cheshire	Professor A. H. BURGESS (Cheadle, Cheshire) Dr. J. S. MANSON (Warrington)	2
D	Derbyshire. East Yorks. Lincolnshire. Midland	Mr. E. LEWIS LILLEY (Leicester)	1
E	Bedfordshire. Cambridge and Huntingdon. Essex. Hertfordshire. Norfolk. Northamptonshire. Suffolk	Dr. J. W. BONE (Luton)	1
F	Berks. Bucks, and Oxford. Birmingham. Staffordshire	Dr. E. H. SNELL (Coventry) Dr. S. WAND (Birmingham)	1
G	North Wales. Shropshire and Mid-Wales	Dr. J. R. PRYTHERCH (Llangefni)	1
H	South Wales and Monmouthshire	Dr. W. E. THOMAS (Ystrad-Rhondda)	1
I	Metropolitan Counties	Sir CRISP ENGLISH (Marylebone) Dr. A. K. GIBSON (North Kensington) Dr. L. G. GLOVER (Hampstead) Dr. H. ROBINSON (South Kensington) Dr. P. B. SPURGIN (Marylebone)	4
J	Bath, Bristol, and Somerset. Gloucestershire. Worcestershire and Herefordshire	Dr. F. H. BODMAN (Bristol) Dr. R. G. GORDON (Bath)	1
K	Dorset and West Hants. South-Western. Wiltshire	Dr. H. C. JONAS (Barnstaple)	1
L	Southern. Surrey	Mr. N. E. WATERFIELD (Great Bookham, Surrey)	1
M	Kent. Sussex	Dr. L. A. PARRY (Hove)	1
N	Aberdeen. Dundee. Northern Counties of Scotland. Perth	Dr. T. FRASER (Aberdeen)	1
O	Edinburgh. Fife	Dr. JOHN HUNTER (Edinburgh)	1
P	Glasgow and West of Scotland (Glasgow Division)	Dr. J. HENDERSON (Glasgow)	1
Q	Border Counties. Glasgow and West of Scotland (5 County Divisions). Stirling	Dr. J. LIVINGSTONE LOUDON (Hamilton)	1
R	Connaught. Munster. South-Eastern of Ireland	*No nomination*	1
S	Leinster. Monaghan and Cavan	Dr. R. C. PEACOCKE (Blackrock, co. Dublin)	1
T	Northern Ireland	Dr. J. C. LOUGHRIDGE (Belfast)	1

The candidates referred to in Groups A, C, D, E, G, H, K, L, M, N, O, P, Q, S, and T, being the only candidates nominated for these Groups, are hereby declared elected Members of the Council for 1935–6.

Voting papers will be posted to all members of the Association in Groups F, I, and J, where there are contests, from the Head Office on Saturday, May 11th, 1935: they are returnable not later than Saturday, May 18th, to the Medical Secretary, British Medical Association House, Tavistock Square, London, W.C.1.

No nominations having been received for Groups B and R, it rests, under the by-laws, with the Council either again to invite nominations from members in the group, or itself to elect members to fill the vacancies.

ELECTION OF 2 MEMBERS OF COUNCIL BY PUBLIC HEALTH SERVICE MEMBERS

The following, being the only candidates nominated for election as Members of Council for 1935–6 by Public Health Service Members, are hereby declared elected Members of Council for 1935–6:

Dr. H. J. MILLIGAN (Reading).
Dr. F. T. H. WOOD (Bootle).

ELECTION OF 4 REPRESENTATIVES AND 4 DEPUTY REPRESENTATIVES IN THE REPRESENTATIVE BODY BY PUBLIC HEALTH SERVICE MEMBERS

The following, being the only candidates nominated for election as Representatives for 1935–6 by Public Health Service Members, are hereby declared elected Representatives in the Representative Body for 1935–6.

Dr. J. FENTON (Kensington).
Dr. R. J. MAULE HORNE (Poole, Dorset).
Dr. E. H. T. NASH (Hounslow).
Dr. R. H. WILSHAW (Worthing).

No nominations having been received for the 4 Deputy-Representatives, their appointment rests, under the by-laws, in the hands of the Chairman of the Representative Body.

G. C. ANDERSON,
Medical Secretary.

BRANCH AND DIVISION MEETINGS TO BE HELD

BIRMINGHAM BRANCH: WARWICK AND LEAMINGTON, AND RUGBY DIVISIONS.—At Manor House Hotel, Avenue Road, Leamington Spa, Friday, May 17th, 4 p.m. Appointment of representative and deputy representative to Annual Representative Meeting. Lecture by Mr R. C. Elmslie: "Sprains and Minor Injuries of the Joints."

CAMBRIDGE AND HUNTINGDON BRANCH: CAMBRIDGE AND HUNTINGDON DIVISION.—At Addenbrooke's Hospital, Cambridge, Friday, May 17th, 3 p.m. Annual meeting. Election of officers, etc. Consideration of Annual Report of Council.

DUNDEE BRANCH.—Thursday, May 16th. Joint meeting with Forfarshire Medical Association. Film: "The Science and Art of Obstetrics."

EAST YORKSHIRE BRANCH.—Thursday, May 16th. Annual general meeting and president's address.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—At Railway Hotel, Newtown St. Boswells, Wednesday, May 15th, 3 p.m. Annual meeting. Election of officers, etc. Consideration of Annual Report of Council.

KENT BRANCH: TUNBRIDGE WELLS DIVISION.—Tuesday, May 14th, 8.30 p.m. Mr. John P. Hosford: "Modern Methods in Fractures and Sprains."

LANCASHIRE AND CHESHIRE BRANCH: BLACKBURN DIVISION.—At Old Bull Hotel, Blackburn, Wednesday, May 15th, 8.45 p.m. Annual general meeting. Election of officers, etc. Consideration of Annual Report of Council, and of adoption of binding resolution regarding the memorandum of recommendations as to the salaries of whole-time public health medical officers.

METROPOLITAN COUNTIES BRANCH: ST. PANCRAS DIVISION.—At B.M.A. House, Tavistock Square, W.C., Tuesday, May 14th, 9 p.m. Annual general meeting.

METROPOLITAN COUNTIES BRANCH: SOUTH MIDDLESEX DIVISION.—At St. John's Hospital, Twickenham, Wednesday, May 15th, 8.45 p.m. Annual general meeting. Election of officers.

METROPOLITAN COUNTIES BRANCH: STRATFORD DIVISION.—At Queen Mary's Hospital for the East End, Stratford, E., Tuesday, May 14th, 9.15 p.m. Annual meeting. At Piccadilly Hotel, W., Thursday, May 16th. Annual dinner.

METROPOLITAN COUNTIES BRANCH: WILLESDEN DIVISION.—At Willesden General Hospital, Wednesday, May 15th, 9 p.m. Annual meeting. Consideration of Annual Report of Council.

SOUTH-WESTERN BRANCH: BARNSTAPLE DIVISION.—At Imperial Hotel, Barnstaple, Tuesday, May 14th, 8 p.m. Annual general meeting. Agenda: Encroachments on local private practice by Devon County Council clinics; election of officers; consideration of Annual Report of Council.

SOUTH-WESTERN BRANCH: CORNWALL DIVISION.—At Royal Cornwall Infirmary, Truro, Tuesday, May 14th, 3.30 p.m. Annual meeting. Election of officers, etc. Address by Dr. G. C. Anderson (Medical Secretary): "The Future of Medical Practice." Non-members welcome.

SOUTH-WESTERN BRANCH: PLYMOUTH DIVISION.—At Goodbody's Café, Plymouth, Tuesday, May 21st, 4.30 p.m. Election of officers, etc.

SUFFOLK BRANCH: SOUTH SUFFOLK DIVISION.—At Sanatorium, Foxhall Road, Ipswich, Wednesday, May 15th, 3.30 p.m. Dr. W. F. Sutcliffe: "Artificial Pneumothorax."

SURREY BRANCH: CROYDON DIVISION.—At Croydon General Hospital, Tuesday, May 14th, 8.30 p.m. Annual general meeting.

SURREY BRANCH: KINGSTON-ON-THAMES DIVISION.—At Surbiton Hospital, Tuesday, May 14th, 8.30 p.m. Annual general meeting.

SUSSEX BRANCH: BRIGHTON DIVISION.—At Royal Sussex County Hospital, Brighton, Thursday, May 16th, 3.45 p.m. Clinical meeting.

YORKSHIRE BRANCH: GOOLE AND SELBY DIVISION.—At Chestnut Croft, Carlton, Wednesday, May 15th, 3.30 p.m. Annual meeting. Election of officers, etc. Consideration of Annual Report of Council.

British Medical Association

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IRISH MEDICAL SECRETARY: 18, Kildare Street, Dublin. (Telegrams: Bacillus, Dublin. Tel.: 62550 Dublin.)

Diary of Central Meetings

MAY

10 Fri. Public Health Committee, 11.30 a.m.
14 Tues. Organization Committee, 2 p.m.
Physical Education Committee, Education Subcommittee, 2 p.m.
15 Wed. Medico-Political Committee, 2.30 p.m.
16 Thurs. Dominions Committee, 2.15 p.m.
Arrangements Committee, 2.30 p.m.
17 Fri. Journal Committee, 2.30 p.m.
22 Wed. Osteopathy Committee, 11.30 a.m.
Finance Committee, 2.30 p.m.
24 Fri. Consultants and Specialists Group Committee, 2.15 p.m.
27 Mon. Physical Education Committee, Training of Teachers Subcommittee, 2 p.m.

JUNE

5 Wed. **Council**, 10 a.m.
12 Wed. Physical Education Committee, Foreign Subcommittee, 2.15 p.m.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—*Tues.* and *Thurs.*, 5 p.m., Croonian Lectures by Sir Edmund Spriggs: A Clinical Study of Headaches.

ROYAL SOCIETY OF MEDICINE

Section of Therapeutics and Pharmacology.—Tues., 5 p.m., at Pharmaceutical Society, Bloomsbury Square, W.C. Annual General Meeting. Election of Officers and Council for 1935-6. Demonstrations and Communications.
Section of Psychiatry.—Tues., 8.30 p.m., Annual General Meeting. Election of Officers and Council for 1935-6. Paper by Dr. C. P. Blacker: Uses and Limitations of Sterilization in Social Psychiatry.
Section of Dermatology.—Thurs., 5 p.m. (Cases at 4½ p.m.) Annual General Meeting. Election of Officers and Council for 1935-6. Cases by Dr. Henry MacCormac, Mr. H. Corsi, and Dr. G. B. Dowling. Other cases will be shown.
Section of Neurology.—Thurs., 7.45 p.m., at National Hospital, Queen Square, W.C. Annual General Meeting. Election of Officers and Council for 1935-6. Cases will be shown.
Section of Physical Medicine.—Fri., 5 p.m. Annual General Meeting. Election of Officers and Council for 1935-6.
Section of Radiology.—Fri., 7 p.m. Annual General Meeting. Election of Officers and Council for 1935-6. The annual dinner of the Section will be held at Claridges Hotel, W., at 8.15 p.m.
Section of Obstetrics and Gynaecology.—Fri., 8 p.m. Annual General Meeting. Election of Officers and Council for 1935-6. Discussion: Diet in Pregnancy. Openers: Dame Louise McIlroy, Diet Requirements in Pregnancy; Dr. G. W. Theobald, Deficiency Hypothesis of the Toxaemias of Pregnancy; Dr. S. J. Cowell, Calcium Requirement and Calcium Metabolism in Pregnancy. Other speakers will take part.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street, W.—*Thurs.*, 8 p.m., Annual General Meeting. Presidential Address by G. Shearer, D.Sc.: The *X*-Ray Microscope. *Fri.*, 11 a.m., Visit of medical members of the Society to *X*-Ray Department of Middlesex Hospital, Mortimer Street, W.
EUGENICS SOCIETY.—At Royal Society's Rooms, Burlington House, Piccadilly, W., *Tues.*, 4 p.m., Annual General Meeting. 5.15 p.m., Professor R. A. Fisher: Eugenics, Academic and Practical.
INSTITUTE OF MEDICAL PSYCHOLOGY, Malet Place, W.C.—*Wed.*, 3 p.m., Dr. H. Crichton-Miller, Anxiety; 4.30 p.m., Dr. Cedric Shaw, Hyperthyroidism.
LONDON JEWISH HOSPITAL MEDICAL SOCIETY.—At 44, Lancaster Gate, W., *Sun.*, 8.30 p.m. Annual Oration by Professor C. Seligman: Some Aspects of Race Psychology.
MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon.*, 8 p.m., Annual General Meeting. 8.30 p.m., Annual Oration by Sir William Willcox: "Toxic Drugs," their Use and Misuse. Followed by a conversazione.
NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY.—At Gate House Hotel, Highgate, N., *Thurs.*, 8.30 p.m. Annual General Meeting, Dinner, and Presidential Address by Dr. J. H. Morton: Self-mutilation and Malingering.
PADDINGTON MEDICAL SOCIETY.—At Great Western Royal Hotel, Paddington, W., *Tues.*, 9 p.m. Dr. G. P. Crowden: The Audiometer and Artificial Aids to Hearing. Dr. P. M. T. Kerridge: Exhibition of Instruments. At Vallero's Restaurant, 25, Chapel Street, N.W., *Thurs.*, 9 p.m., Annual Supper.
ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 26, Portland Place, W.—*Thurs.*, 8.15 p.m. Dr. D. H. K. Lee: The Human Organism and Hot Environments.
SOCIETY OF CHEMICAL INDUSTRY: LONDON SECTION.—At Chemical Society's Rooms, Burlington House, Piccadilly, W., *Mon.*, 8 p.m. Annual General Meeting. Paper by Professor F. L. Pyman: Some Lines of Research in Chemotherapy.
WEST KENT MEDICO-CHIRURGICAL SOCIETY. — At Chiesman's Restaurant, Lewisham, S.E., *Thurs.* 7.30 p.m., Reception. 8 p.m., Annual Dinner and Dance.

POST-GRADUATE COURSES AND LECTURES

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.—*Brompton Hospital*, S.W.: All-day Course in Thoracic Surgery. *Maudsley Hospital*, Denmark Hill, S.E.: Afternoon Course in Psychological Medicine. *St. John's Hospital*, Leicester Square, W.C.: Afternoon Course in Dermatology. *Panel of Teachers:* Individual clinics in various branches of medicine and surgery are available daily. Courses, etc., arranged by the Fellowship are open only to members and associates, with the exception of the Dermatology course.
CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.—*Daily*, Intensive Course.
HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—*Thurs.*, 2 p.m., Clinical Lecture, Mr. James Crooks, Infection of the Ear and Sinuses. 3 p.m., Dr. W. W. Payne, Carbohydrate Metabolism—No. 1, Normal Carbohydrate Metabolism. Out-patient Clinics, mornings, 10 a.m. to 12 noon. Ward Visits, afternoons, 2 p.m. to 3.30 p.m. (except Wed.).
INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.—*Thurs.*, 5 p.m., Dr. I. N. Asheshov, Bacteriophage.
LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester Square, W.C.—*Mon.*, 5 p.m., Dr. R. T. Brain, Rodent Ulcer. *Tues.*, 5 p.m., Dr H. MacCormac, Treatment of Syphilis. *Wed.*, 5 p.m., Dr. I. Muende, Pathological Demonstration. *Fri.*, 5 p.m., Dr. W. Griffith, Bullous Eruptions.
LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel Street, W.C.—*Mon.*, 5.30 p.m., Professor Major Greenwood, The Modern Importance of the Temperamental Factor and its Ancient History.
UNIVERSITY COLLEGE, Gower Street, W.C.—*Mon.*, 5 p.m., Dr. D. H. K. Lee, Physiological Effects of Tropical Climate. *Tues.*, 5 p.m., Dr E. W. Fish, The Physiology of Teeth.
WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.—*Daily*, 2 p.m., Operations, Medical and Surgical Clinics. *Mon.*, 10 a.m., Medical Wards; 11 a.m., Surgical Wards; 2 p.m., Gynaecological and Surgical Wards, Eye and Gynaecological Clinics. *Tues.*, 10 a.m., Medical Wards; 11 a.m., Surgical Wards; 2 p.m., Throat Clinic. *Wed.*, 10 a.m., Medical Wards, Children's Clinic and Wards; 2 p.m., Gynaecological Operations and Eye Clinic. *Thurs.*, 10 a.m., Neurological and Gynaecological Clinics; 12 noon, Fracture Demonstration; 2 p.m., Genito-urinary and Eye Clinics; 3.45 p.m., Venereal Diseases. *Fri.*, 10 a.m., Skin Clinic; 12 noon, Lecture on Treatment; 2 p.m., Throat Clinic. *Sat.*, 10 a.m., Medical Wards, Children's and Surgical Clinics.
ABERDEEN MEDICAL SCHOOL.—At Aberdeen Royal Infirmary: *Tues.*, 3.15 p.m., Mr. S. G. Davidson and Dr. D. Levack, Anatomy, Physiology, and Radiology of Normal Gastro-intestinal Tract; *Thurs.*, 3.15 p.m., Dr. A. Lyall, Biochemistry of Gastric Secretion.
DUNDEE ROYAL INFIRMARY.—*Thurs.*, 3.15 p.m. Film: The Science and Art of Obstetrics.
GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.—At Victoria Infirmary: *Wed.*, 4.15 p.m., Dr. W. Herbert Brown, Skin Cases.
LIVERPOOL UNIVERSITY CLINICAL SCHOOL ANTE-NATAL CLINICS.—Royal Infirmary: *Mon.* and *Thurs.*, 10.30 a.m., Maternity Hospital: *Mon.*, *Tues.*, *Wed.*, *Thurs.*, and *Fri.*, 11.30 a.m.
MANCHESTER ROYAL INFIRMARY.—*Tues.*, 4.15 p.m., Dr. W. Brockbank, Lung Cancer *Fri.*, 4.15 p.m., Mr. J. P. Buckley, Demonstration of Surgical Cases.
NEWCASTLE GENERAL HOSPITAL.—*Sun.*, Mr. J. Collingwood Stewart, Abdominal Distension and its Significance.

VACANCIES

All advertisements should be addressed to the Financial Secretary and Business Manager and NOT to the Editor.

ABERDEEN: ROYAL ABERDEEN HOSPITAL FOR SICK CHILDREN.—Ophthalmic S.

BATH: ROYAL UNITED HOSPITAL.—Out-patient and C.O. (male, unmarried). Salary £150 p.a.

BEDFORD COUNTY HOSPITAL.—(1) First H.S. (2) Second H.S. Males, unmarried. Salaries £155 and £150, respectively.

BELFAST: FORSTER GREEN HOSPITAL FOR CONSUMPTION AND CHEST DISEASES.—H.P. Salary £150 p.a.

BIRMINGHAM CITY.—(1) R.M.O. (female) in the Maternity and Child Welfare Department of Cauwell Hall Babies' Hospital. Salary £250 p.a. (2) Temporary M.O's. (females) in the Maternity and Child Welfare Department. Salaries £10 per week.

BIRMINGHAM GENERAL DISPENSARY.—Resident Locum M.O. (male, unmarried). Salary £8 8s. per week.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—(1) H.S. (male). Salary £120 p.a. (2) Hon. P.

BOLTON ROYAL INFIRMARY.—Two H.S. Salaries £125 p.a. each.

BRADFORD: ROYAL EYE AND EAR HOSPITAL.—H.S. (male). Salary £160 p.a.

BRIGHTON: ROYAL SUSSEX COUNTY HOSPITAL.—Second Honorary Radiologist.

BRISTOL: COSSHAM MEMORIAL HOSPITAL.—Second R.M.O. (male). Salary £100 p.a.

BURY INFIRMARY, LANCS.—Third H.S. (male). Salary £150 p.a.

CAMBRIDGE: PHYSIOLOGY SCHOOL.—George Henry Lewes Studentship. Salary £250 p.a.

CANCER HOSPITAL (FREE), Fulham Road, S.W.—Full-time Assistant Radium Officer. Salary £350 p.a.

CARDIFF: WELSH NATIONAL SCHOOL OF MEDICINE.—(1) Part-time Demonstrator in the Materia Medica and Pharmacology Department. Salary £50 p.a. (2) Junior Assistant in the Medical Unit. Salary £250 p.a.

CHEETHAM: MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—J.H.S. (male). Salary £125 p.a.

CHESTER ROYAL INFIRMARY.—H.S. (male). Salary £150 p.a.

COVENTRY CITY.—Second Assistant R.M.O. (male), at Gulson Road Municipal Hospital. Salary £250 p.a.

COVENTRY AND WARWICKSHIRE HOSPITAL.—H.S. (male) for the Aural and Ophthalmic Departments. Salary £125 p.a.

DARLINGTON MEMORIAL HOSPITAL.—H.S. (male) for the Casualty and Out-patient Department. Salary £150 p.a.

DERBY CITY HOSPITAL.—Fourth R.M.O. (male). Salary £120 p.a.

DEVON COUNTY COUNCIL.—Assistant County M.O. Salary £500-£25-£700 p.a.

FRODSHAM: LIVERPOOL SANATORIUM.—Second Assistant (male, unmarried). Salary £200 p.a.

GRIMSBY COUNTY BOROUGH.—R.M.O. (male, unmarried) at the Grimsby Corporation Hospital. Salary £350-£25-£450 p.a.

GUY'S HOSPITAL MEDICAL SCHOOL, S.E.—Beaney Scholarship in Materia Medica. Salary £60 p.a. for three years.

HALIFAX COUNTY BOROUGH.—J.R.M.O. (male, unmarried) at the Halifax General Hospital. Salary £250 p.a.

HASTINGS: ROYAL EAST SUSSEX HOSPITAL.—Hon. P.

HEREFORDSHIRE GENERAL HOSPITAL.—H.S. and C.O. (male). Salary £100 p.a.

HORTON GENERAL HOSPITAL.—R.M.O. Salary £150 p.a.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—Whole-time Assistant in the Pathology Department. Salary £350 p.a.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) H.P. (2) H.S. Males, unmarried. Salaries £100 p.a. each.

HULL ROYAL INFIRMARY.—C.O. (male). Salary £150 p.a.

HUNTINGDON ADMINISTRATIVE COUNTY.—Assistant County M.O. and Assistant School M.O. (female). Salary £50 per month.

ILFORD: KING GEORGE HOSPITAL.—(1) R.S.O. (2) Resident Assistant S.O. and C.O. (3) Two H.P. (4) Three H.S. Salaries £300 p.a., £250 p.a., £100 p.a., and £100 p.a., respectively.

IPSWICH COUNTY BOROUGH.—R.A.M.O. (female) at Heathfields Municipal Hospital, Heathfield House, and St. John's Home for Children. Salary £250 p.a.

LANCASHIRE COUNTY COUNCIL.—(1) R.S.O. (unmarried) at Park Hospital, Davyhulme, near Manchester. Salary £500 p.a.

LINCOLN COUNTY HOSPITAL.—J.H.S. (male, unmarried). Salary £150-£200 p.a.

LONDON HOSPITAL, Whitechapel, E.—First Assistant to the Gynaecological and Obstetric Department.

LONDON LOCK HOSPITAL, Harrow Road, W.—Surgical Registrar to the Female Lock Hospital. Honorarium £100 p.a.

MAIDSTONE: KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL.—H.S. (male) to the Ear, Nose, and Throat Department. Salary £200 p.a.

MANCHESTER: ANCOATS HOSPITAL.—(1) Medical Registrar. Honorarium £50 p.a. (2) Orthopaedic H.S. Salary £100 p.a. (3) C.O. Salary £250 p.a.

MANCHESTER CITY.—R.A.M.O. (male, unmarried) at Monsall Hospital for Infectious Diseases. Salary £350-£25-£450 p.a.

MANCHESTER EAR HOSPITAL.—Non-resident H.S. Salary £150 p.a.

MANCHESTER ROYAL INFIRMARY.—(1) J.A.M.O. (non-resident in the Radiological Department. Salary £350 p.a. (2) M.O. to Out-patients. Salary £35.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—(1) Two A.M.O's. (2) H.S. Salaries £100 p.a. each.

MEXBOROUGH: MONTAGU HOSPITAL.—J.H.S. (female). Salary £100 p.a.

NEWCASTLE-UPON-TYNE EYE HOSPITAL.—J.R.H.S. Salary £150 p.a.

NORTHAMPTON COUNTY MENTAL HOSPITAL.—J.A.M.O. (male, unmarried). Salary £350-£25-£450.

OSWESTRY: ROBERT JONES AND AGNES HUNT ORTHOPAEDIC HOSPITAL.—H.S. Salary £200 p.a.

OXFORD: WINGFIELD-MORRIS ORTHOPAEDIC HOSPITAL.—H.S. (male). Salary £100 p.a.

OXFORD COUNTY BOROUGH.—Temporary Assistant M.O.H. Salary £500 p.a.

PLYMOUTH: PRINCE OF WALES'S HOSPITAL.—H.P. and C.O. Salary £100 p.a.

PRESTON COUNTY BOROUGH.—Senior A.R.M.O. (female). Salary £150 p.a.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone Road, N.W.—R.A.M.O. (male). Salary £80 p.a.

RADIUM INSTITUTE, Riding House Street, W.—H.S. (unmarried). Salary £150 p.a.

READING: ROYAL BERKSHIRE HOSPITAL.—(1) C.O. (2) H.S. to Ophthalmic and Ear, Nose, and Throat Departments. Salaries £125 p.a. each.

ROYAL CHEST HOSPITAL, City Road, E.C.—(1) R.M.O. (2) H.P. Salaries £150 and £100 p.a., respectively.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Non-resident First Assistant in the Children's Department. Salary £115 p.a.

ROYAL NORTHERN HOSPITAL, Holloway Road, N.—R.M.O. Salary £370 p.a.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.—(1) C.O. (2) H.S. Males. Salaries £200 p.a. and £100 p.a., respectively.

ST. HELENS COUNTY BOROUGH.—Deputy M.O.H. (male). Salary £700-£25-£750.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—Part-time Assistant Radiologist at the Dreadnought Hospital, Greenwich. Honorarium £52 10s.

SHEFFIELD CITY.—J.A.M.O. (male) at City General Hospital. Salary £200 p.a.

SHEFFIELD: ROYAL INFIRMARY.—H.P. Salary £80-£100 p.a.

SHEFFIELD: ROYAL INFIRMARY AND ROYAL HOSPITAL.—Non-resident Clinical Assistant to the Radiological Departments. Salary £300 p.a.

SOUTH SHIELDS: INGHAM INFIRMARY.—(1) Senior H.S. (2) J.H.S. Males. Salaries £200 and £150 p.a., respectively.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) C.O. (2) Resident Anaesthetist and H.S. (3) H.S. Males, unmarried. Salaries £150 p.a. each.

SOUTHEND-ON-SEA COUNTY BOROUGH.—Assistant M.O.H. (male). Salary £600-£25-£800 p.a.

STOKE-ON-TRENT: BURSLEM, HAYWOOD, AND TUNSTALL WAR MEMORIAL HOSPITAL.—J.M.O. (male). Salary £150 p.a.

STOKE-ON-TRENT: LONGTON HOSPITAL.—H.S. (male). Salary £160 p.a.

SUNDERLAND ROYAL INFIRMARY.—(1) H.P. (2) H.S. Males. Salaries £120 p.a. each.

SWANSEA: CEFN COED HOSPITAL.—A.M.O. Salary £350-£25-£450.

TALGARTH: MID-WALES COUNTIES MENTAL HOSPITAL.—A.M.O. (male). Salary £350-£25-£450 p.a.

TAUNTON AND SOMERSET HOSPITAL.—H.S. (male). Salary £100 p.a.

TRURO: ROYAL CORNWALL INFIRMARY.—H.S. (male). Salary £170 p.a.

UNIVERSITY COLLEGE HOSPITAL DENTAL SCHOOL, University Street, W.C.—Demonstrator in Mechanical Department of National Dental Hospital, Great Portland Street, W. Salary £200 p.a.

WAKEFIELD: WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.—Sixth A.M.O. Salary £350-£25-£450 p.a.

WEST BROMWICH AND DISTRICT GENERAL HOSPITAL.—H.P. (male). Salary £200 p.a.

WEST END HOSPITAL FOR NERVOUS DISEASES, Gloucester Gate, N.W.—Hon. Anaesthetist.

WOLVERHAMPTON: ROYAL HOSPITAL.—H.S. (unmarried). Salary £100 p.a.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, Shooters Hill, S.E.—(1) H.P. (2) H.S. Males. Honorariums £100 p.a. each.

YORK CITY.—(1) Senior Assistant School M.O. (male). (2) Assistant School M.O. (female). (3) Temporary A.M.O. Salaries £500-£25-£700 p.a. each. (4) Temporary R.M.O. Salary £250 p.a.

CERTIFYING FACTORY SURGEON.—The appointment at Llanberis (Caernarvonshire) is vacant. Applications to the Chief Inspector of Factories, Home Office, Whitehall, S.W.1, by May 21st.

APPOINTMENTS

KELYNACK, Agnes V., M.B., B.S., Senior Resident Medical Officer (reappointed), Royal Free Hospital, Gray's Inn Road, W.C.

WELSH NATIONAL SCHOOL OF MEDICINE.—*Professor of Surgery and Director of the Surgical Unit:* Lambert Rogers, M.Sc., F.R.C.S., F.A.C.S., F.R.A.C.S. *Junior Assistant in the Surgical Unit:* Alan F. Goode, M.B., Ch.B., F.R.C.S. *Assistant Lecturer in the Department of Materia Medica and Pharmacology:* Frank Hawking, D.M., B.Ch., D.T.M. *Assistant Lecturer in the Department of Pathology and Bacteriology:* J. M. L. Burtenshaw, B.M., B.Ch., D.P.H. *Demonstrator in the Department of Pathology and Bacteriology:* R. W. John, M.R.C.S., L.R.C.P.

CERTIFYING FACTORY SURGEONS.—A. H. Driver, M.B., Ch.B.New Zealand, for the Leominster District (Herefordshire); W. MacD. Martin, M.B., Ch.B.Ed., for the Peebles District (Peebles-shire); A. Menzies, M.B., Ch.B.Ed., for the Youlgreave District (Derbyshire).

BIRTHS, MARRIAGES, AND DEATHS

The charge for inserting announcements of Births, Marriages, and Deaths is 9s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

DEATHS

BOOG-WATSON.—In London, suddenly, on May 2nd, 1935, Robert Boog-Watson, M.B., Ch.B.Ed., D.P.H., Squadron Leader, Royal Air Force Medical Service.

GAY.—John Gay, M.D., D.P.H., M.R.C.S., on April 20th, at his residence, 137, Upper Richmond Road, S.W.15, after very short illness. Funeral at St. John's Church, Putney, on April 24th, and afterwards at the Crematorium, Golder's Green.